Capsule Endoscope System

User's Manual

—————— **Image recorder**

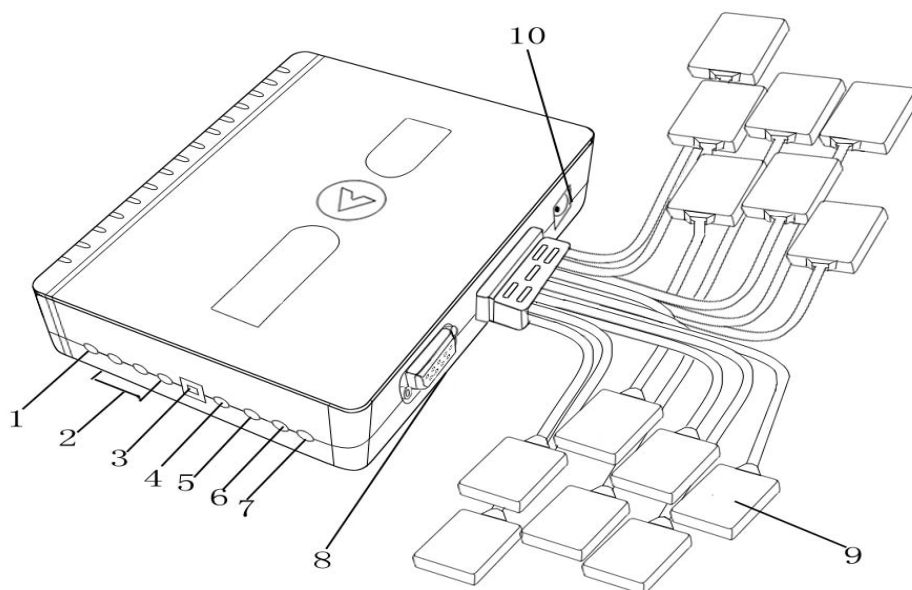SCIE-OM-01

Contents

Image recorder

The image recorder is used to receive, process and store the image information transmitted by the capsule. It consists of antenna array, record box, memory card and build-in lithium battery. Accessories include adaptor, jacket, USB cable and power cable etc. When the image recorder is in use, 14 antenna elements are distributed close to the surface of abdomen and waist back. Refer to **P37** for the layout of antenna array.

1 Components and specifications

No.	Component	Signal	Description
1	Alarm Indicator	ALM	Indicating low-battery and full of CF card.
2	Battery Indicator	◐ ◐ ●	Indicating Battery Content, 3 lights means full of power
3	Switch	ON /OFF	Power Switch
4	ACT indicator	ACT	Indicator flashing indicates the image transfer
5	USB Indicator	USB	Indicator flashing indicates the image transfer
6	Charge Indicator	CHG	Green light indicates charging, light-off indicates charging completed.
7	Power Indicator	PWR	Light-on indicates working statues
8	COM Port	COM	Communicating with PC

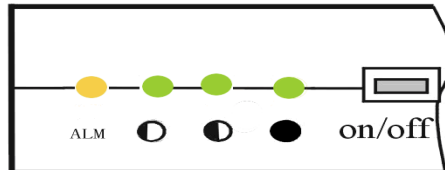| 9	Lead Elements		Communicating with PDA.
10	DC Plug-in	DCIN	Charging the Recorder.

2 Indicators of the image recorder

The image recorder has eight LEDs and a buzzer, which used to indicate various kinds of status of the image recorder while working. For the purpose of better use of the image recorder, please read this section carefully.

Alarm Indicator

'ALM' indicator indicates the alarming status of the recorder.

Illustrator of 'ALM indicator

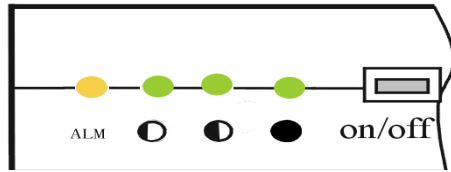| ALM Indicator	Description
ON	Low Power or Full of CF Card
Off	No Alarming

Audio Indicator

The built-in beeper indicates the relevant alarming status.

Steps	Alarming	Description
Power On	Beeping Once.	Start Normally
Working	Beeping every 0.5 second, and ALM indicator flashing	CF Card Error
	Beeping every 1 second, and ALM indicator flashing.	Full of CF Card
	Beeping every 2 seconds, and ALM indicator flashing.	Low Power
Power off	Beeping Once	Power off Normaly.

Battery indicator

The built-in lithium battery can be recharged its battery capacity be read from corresponding indicators, refer to picture below.
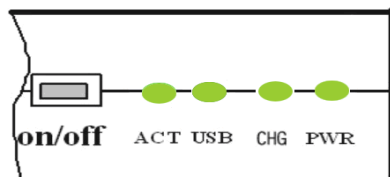
The indicator is off when the image recorder is switched off or out of power.

🔔：Please recharge the battery soon after using the image recorder. The image recorder will be shut down automatically while the battery capacity is insufficient.

Battery indicator	Description	Battery capacity
● ● ● O O ●	3 lights on	> 75 %
● ● ○ O O ●	2 lights on	> 30 %
● ○ ○ O O ●	1 light on	> 10 %
○ ○ ○ O O ●	no light on	< 5 %

🔔：When all the lights are off, please charge the image recorder in time. In order to guarantee its duration time in diagnostic procedure, the battery capacity below 50% should be charged before use.

Active indicator

"ACT" indicator shows whether the image recorder work normally.

ACT indicator	Status description
Off when power on	The image recorder is ready to use
Flashing when working	Receiving the data

Warning indicator

Warning indicator shows the warning status of the image recorder

ALM indicator	Warning status description
On	Low battery, or CF card is full.
Off	Normal condition

"USB" indicator shows the communication status between image recorder and computer.

USB indicator	USB status description
Flashing	Normal communication between image recorder and computer
Off	No image received. Or, the improper connection between computer and image recorder

Power indicator

"PWR" indicator shows the power status of the image recorder.

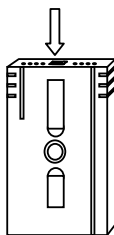| PWR indicator	Status description
On	Image recorder power on.
Off	Image recorder power off.

Charging indicator (CHG)

When the user is charging image recorder, the green LED turns on and turns off as soon as charging finish. The flashing LED indicates the temperature in image recorder is too high.

CHG Indicator	Description
On	Charging
Off	Charging Completed

3 Instruction of operating

3.1 Power on/off the image recorder

Press down the power switch button (On/Off) of the image recorder and hold it with 2 seconds to switch on/off the power.

When the power indicator is on and the ACT indicator is turned off, the image recorder is standby and ready for use.

The power indicator on and ACT indicator flashing demonstrate that the image recorder is receiving the image data from the smart capsule.

🔔：Auto shutoff is available for the image recorder as its battery is getting too low. The user may charge the recorder in time.

3.2   Downloading the capsule information

To ensure the correct recording of the image information, the serial number and channel code of the capsule must be downloaded into image recorder from the image workstation software before use (the serial and channel number of the capsule can be read from its package), otherwise, OMOM capsule endoscope system will not work normally.

ⓘ：Information only needs to be downloaded once after a new capsule is activated.

It is not necessary to re-download again after the reset of the recorder.

Procedure 1:

1) Connect the image recorder to the computer with USB cable.

2) Switch on the image recorder.

3) Run the image workstation software program, select Channel Setting from Function Option menu. Input the serial number and channel code of the capsule in textbox.

4) Click button "Download channel information to recorder" by mouse. If "Command has been sent successfully" is prompted, the capsule information has been downloaded into the image recorder. If "Command failure, please send again" is displayed, check and repeat operation.

Procedure 2: Refer to chapter 3.6.2 "Add patient from System Preparing".

3.3 Charge the image recorder

Charge the image recorder one night before diagnostic procedure may save

time of both patient and doctor.

Avoid charge image recorder by adaptors or cables from other sources. The manufacturer recommend to charge as follow:

1) Switch off the image recorder.

2) Insert the power output of the adaptor to the image recorder.

3) Connect the power cables (Rated input: 100～240VAC, 47～63HZ).

The charging indicator (CHG) will turn to green. A full charge of the image recorder may take 11 hours. As soon as the "CHG" turns off, the user may disconnect all cables and finish charging.

ⓘ：Switch off image recorder before charging is recommended. Charge image recorder in diagnostic procedure may increase charging hours.

ⓘ**: For safety reason, charge image recorder by third party's cable or adaptor is prohibited.**

⚠**: The batteries are recyclable. Dispose with batteries out of service by care with local regulations for environment protection.**

ⓘ：It is recommended to replace a battery in case the charging times reach 500 cycles (one cycle means full charge to out of power) or battery is used for more than 2 years.

🔔：The replacement of battery shall be performed by specialist or our company; otherwise, we are not responsible for any problem. Material and Testing Fee will be charged in case product out of guarantee；

🔔:When the recorder is not used for long time, the battery shall be charged monthly. The charging is completed when the charging indicator turn off.

⚠：We are not responsible for any problem leaded by that the battery is not replaced when reach the limited condition.

Specifications:

·Power Source: Rechargeable Lithium ion Battery

·Duration hours: ＞ 11 hours

·Storage: 4GB SD card

·Antenna elements: 14

·Battery capacity: 3500mAh

·USB port: USB2.0

·Weight of image recorder: ≤ 1 kg

Continuous Working Time	11±1h (QVGA/2fps)
Voltage	3.6V-4.2V DC
Current	0.30A
Working temperature	0~40℃
RH (Working)	75%
RH (Storage)	80%
Storage Temp.	0~50℃
Atmosphere	100KPa

4   Maintenance of the image recorder

(1) The image recorder shall be kept in a dry place with the temperature -40～70℃ and maximum humidity 90%.

(2) Before storing, make sure that the power supply is shut off.

(3) Keep the recorder away from fire when use or store;

(4) Keep the recorder away from water or any other liquid when use or store;

(5) If you do not use the recorder for a long time, charge the recorder once a month and the charging time shall not be less than 2 hours.

(6) Sterilize image recorder regular to avoid infecting.

⚠️*Warning:* Environment of use Product is designed for indoor use.   Operator must confirm that the environment of use meets the required operating environmental specifications before using.

⚠️*Warning:* Cold Environments If the Product is stored in an environment with a temperature below the operating temperature; the unit should be allowed to warm up to the needed operating temperature before using.

⚠️*Warning:*

FCC WARNING STATEMENT

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.