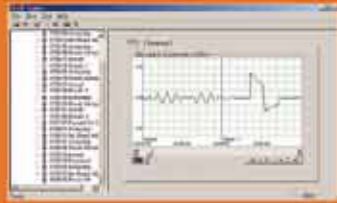# Software CU-EX1

- Patient and Data Management Software
- Easy Data Communication between PC and Product (UART, IrDA)
- Records ECG Data and Voice
- Easy Printing by all kinds of Printers
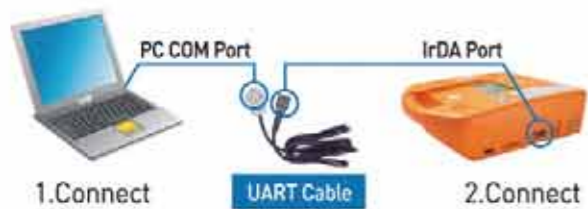- Data Communication with i-PAD, Paramedic, Lifegain and i-Viewer

CU-EX1 displays ECG data on the computer after receiving the data from i-PAD, Paramedic, Lifegain and i-Viewer.
If you use CU-EX1, you are able to analyze, record and manage ECG data of the patients more efficiently.

intelligent PATIENT INFORMATION & CARE

Method

PC

Key File

CU Expert

UART Cable (Optional)

IrDA Cable (Optional)

i-PAD

i-VIEWER

Paramedic
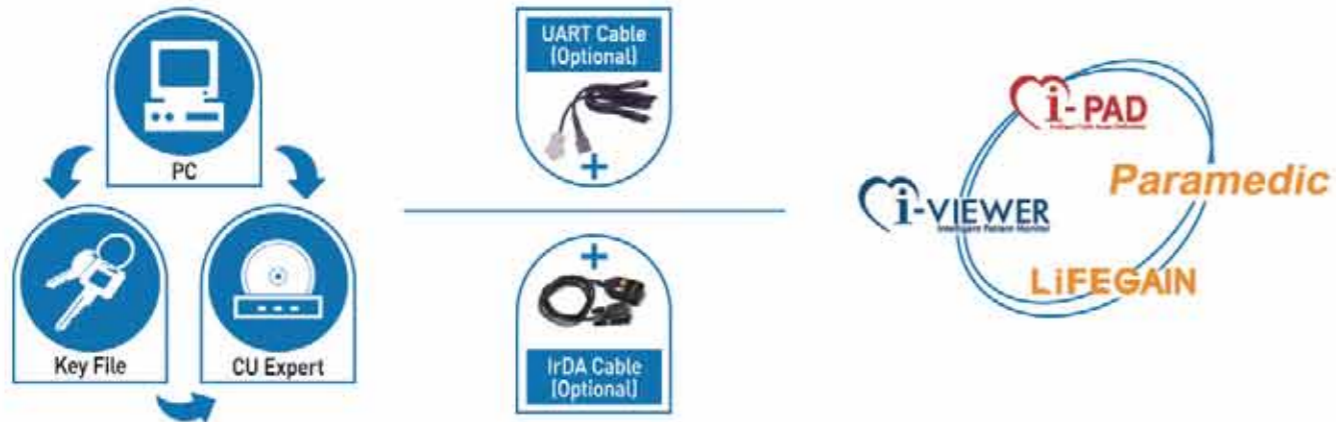
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Method to connect UART cable for wire communication

PC COM Port

IrDA Port

1.Connect   UART Cable   2.Connect

Method to connect IrDA cable for wire communication

PC COM Port

IrDA Port

1.Connect   IrDA Cable   2.Locate closely

i-PAD

CU-SP1   CU-SP1 Trainer

NF1200
NF1201   NF1200 Trainer   NF1200-T2

Paramedic

CU-ER1   CU-ER2   CU-ER3

CU-ER5   CU-ERT

LiFEGAIN

CU-HD1

Head Office
5th floor, Chunggye Plaza, 991-4 Chunggye, Uiwang City, Gyeonggi Province, Republic of Korea
Tel : +82 31 421 9700   Fax : +82 31 421 9911 email : admin@cu911.com

Plant
Dongwha Medical Instrument Complex 1674-1 Dongwha, Munmak, Wonju City, Gangwon Province, Republic of Korea
Tel : +82 33 747 7657   Fax : +82 33 747 7657

Branch office in Europe
Kuester Strasse 6, 30519, Hannover, Germany
Tel / Fax +49 511 848 6054

EU Authorized Representative
Medical Device Safety Service Schiffgraben 41, 30175 Hannover, Germany
Tel : +49 511 6262 8630   Fax : +49 511 6262 8633

CU Medical Systems, Inc.

http://www.cu911.com   CE 0470

CU Medical Systems, Inc.
www.cu911.com

CU Medical Systems, Inc.

Company Overview

CU Medical Systems, Inc. is a high-technology medical device company that designs, develops, manufactures, and markets medical devices centered around one common characteristic: Intelligence

Mission

Our missions for our range of intelligent resuscitation and monitoring devices to become the standard tool for health and emergency organizations in their quest to save and preserve more lives.

Product Lines

i-PAD

This is our line intelligent Public Access Defibrillators that are designed for the general public who may be the first on the scene of a cardiac arrest. These devices come with simple and straightforward user interfaces-perfect for the general public that seldom use defibrillators.

Paramedic

This is our line of intelligent patient care devices that consist of defibrillators designed for advance users such as emergency responder and health care organization personnel. These devices are light-weight and easy to use-perfect for rescuers in and out of the hospital.

LiFEGAIN

These defibrillators are designed for hospital use. These may run either in Manual or AED mode. Aside from defibrillation capability, these devices usually come integrated with physiological monitors such as 12-lead ECG and SpO_2. These features make this kind of defibrillators suitable for use by physicians inside a hospital.

Quality Credentials

Corporate Quality Policy

Since we design, develop, manufacture, sell and service our brand-new Paramedic series and AED and other products as well, we put a lot of importance on the quality of our products and services. It is our way of showing to our partners and customers not only concern for safety and reliability but also our belief that quality is the key for long term success in business.

- Do it right the first time to eliminate costly rework
- Listen to and learn from customers and employees
- Make Continuous improvement an everyday matter
- Build teamwork, trust, and mutual respect

Quality Assurance

CU Medical Systems, Inc. continuously encourage quality improvement through Total Quality Management to consistently improve the safety and reliability of our products as well as quality systems. With these perspectives, CU Medical Systems, Inc. strives to comply with the rigorous quality sysytem regulations of the following organizations:

- ISO 13485 : 2003 (Europe) (with yearly inspections) - EN46001 (Europe)
- Medical Device Directive (MDD 93/42/EEC) (Europe)
- Conformite Europeen (CE MARK) labeling
- KFDA Quality Approval (Korea)
- JFDA Approval (Japan) -Paramedic CU-ER1
- FDA Approval (US) - iPAD NF1200

Quality Achievements

It is gratifying when quality achievements come with official recognition from outside entities. In the past years, CU Medical Systems, Inc. has achieved and been honored with the following:

Excellent Korean Technology Mark (KT MARK) (June 11, 2003)
Development of automatic external defibrillator by utilizing entropy arrhythmia analysis algorithm
Ministry of Science Technology

Excellent Machinery, Mechanism Materials Mark (EM MARK) (Aug 30, 2003)
ATS (Agency for Technology and Standards)
Ministry of Commerce, industry Energy

Certificate of Excellent Quality Product (Oct 30, 2003)
Public Procurement Service, Republic of Korea

Won the 4th SMBA technological innovation prize for AED (Sep 24, 2003)
Small Medium Business Administration

Health Industry Technologies Exposition Korea 2003 Award (Dec 4, 2003)
Korea Health Industry Development Institute

Korean World-class Product Award 2005 (June 30, 2005)
Ministry of Commerce, Industry Energy

Leading company of regional Innovation Award 2005 (Oct. 5, 2005)
The Prime Minister, Presidential Committee on Balanced National Development.

IR52 Jang Young Shil Award 2008 (May 20th, 2008) : iPAD NF 1200
Korea Industrial Technology Association

i- PAD CU-SP1

(Intelligent Public Access Defibrillator)
Defibrillation capability for the general public

Key Features

- Ambient noise detection(Auto volume adjusting)
- CPR detection
- Pads and battery status indicator
- Multi events recording
- Easy communication with CU-EX1 software
- Low cost of ownership

❖ Specifications

• DEFIBRILLATOR
- **Model :** IPAD CU-SP1
- **Standard Package :** Defibrillator, Pads, Battery, Manual
- **Output Energy :** Adult-150Joules / Pediatric-50Joules(Common usage)
- **Charging Time**
  Charging time : Less than 10 seconds
  Charging time after CPR finished : At least 6 seconds

• User Interface
- **User Support :** Detailed voice prompts and flashing indicators
- **CPR guidance :** Voice prompts for how to perform CPR for adult and child patient
- **Controls :** On/Off button, I button, Shock button
- **Indicator :** LCD display(Device status, Battery status, Pads status)
- **Sensing :** Pads expiring date, Pads connection status
- **CPR monitoring**
- **Automatic Volume adjusting**

• Enviorment
- **Sealing :**
  Waterjet proof IPX5 per IEC60529(IP55)
  Dust protected IP5X per IEC60529
- **Temperature :** Operation/Standby (0 ~43℃)
- **Vibration :** Meets MILSTD 810G

• Patient Analysis System
- **Patient Analysis :** Shockable rhythms (Ventricular Fibrillation, Ventricular Tachycardia)
- **Sensitivity/Specificity :** Meets AAMI DF80 Guideline

• Battery
- **Standard Capacity :** - Type : DC 12 volt 2.8Ah, Lithium manganese dioxide
                          - Capacity : Minimum 50 shocks(150J)
- **High Capacity :** - Type : DC 12 volt 4.2Ah, Lithium manganese dioxide
                      - Capacity : Minimum 200 shocks(150J)
- **Lifespan :** 5 years (high capacity battery)
  (With the condition of the temperature of operation/standby, standby mode after the first initial check)

• Data Recording and Transmission
- **IrDA port :** Wireless transmission of event data to PC, SD card
- **Internal Memory :** ECG, Event
- **Storage Capacity :** Multi Recording 5 events / Max 3 hours
- **Data Review PC Program :** CU-EX1

• Size : 260 × 256 × 69.5 (W × L × H, mm)
• Weight : 2.4kg

• Parts & Accessories

Standard Package
- Device
- Multifunction Defib. Pads
- Disposable LiMnO₂ Battery Pack
- User's Guide

Opition
- Carrying case
- SD card
- Software for data management with key file
- Wall bracket   - Wall cabinet

CU-SP1 Trainer
- 8 Standard rescue scenarios
- Powered by AAA disposable, rechargable battery
- Simulates all the functions of CU-SP1

Auto volume adjusting, upto 90db
Ambient noise detector measures level of background noise and adjusts the volume of the voice prompts accordingly.

Smart pads storage, underneath the device
Integrated pad storage
- electrode pads are stored, pre-connected, in a clear compartment on the underside of the unit.

Smart CPR detection
- If CPR is not being performed, voice prompts encourage the responder to 'perform CPR'
- If CPR is being performed, voice prompts encourage the responder to 'continue CPR'

Easy communication
- Internal memory stores the last 5 events/3 hours of data
- Data can be transferred via the built in SD card and IrDA ports

Patient mode switch
- Easily switch from Adult to Child mode without changing pads
- Safety cover prevents accidental switching

i-PAD NF1200 (Semi-Automated)
i-PAD NF1201 (Fully-Automated)

(Intelligent Public Access Defibrillator)
Defibrillation capability for the general public

Key Features

- Patented *e-cube* Biphasic Truncated Exponential Shock Waveform
- Automatic Self-testing
- CPR coaching
- Multi event recording
- Pads status detection
- Simple operation
- LED status indicator

❖ Technical Specifications

· DEFIBRILLATOR
- **Model** : NF1200　　　**- Operation** : Semi-Automated (NF1200), Fully-Automated (NF1201)
- **Waveform** : Biphasic Truncated Exponential　　**- Energy** : 200J (Fixed)
- **Shock-to-Shock Cycle Time** : Typically less than 20 seconds
- **Protocol** : Voice prompts and indicators guide user through protocol. Follow preconfigured settings. Can be modified with software
- **Voice Instructions** : Detailed voice messages guide responder through use of the defibrillator
- **Controls** : Shock Button (NF1200 only), i-Button, On/off Button
- **Indicators** : 4 LEDs (different colors), i-Button

· ENVIRONMENTAL / PHYSICAL REQUIREMENTS
- **Temperature** : Operating : 32° ~110° F (0° ~ 43℃)
  Standby : 32° ~ 110° F (0° ~ 43℃)
- **Humidity** : Operating - 0% to 60% relative, non-condensing
  Standby - 0% to 95% relative, non-condensing
- **Vibration** : Meets EN1789 random and swept sine, road ambulance specification in operating and standby states
- **EMI** (Radiated/Immunity) : Meets EN55011 Group 1 Level B Class B and EN61000-4-3

· Sealing
- Meets IEC60529 class IP54 with battery installed

· BATTERY
- **Type** : 12 Volt DC, 4.2 Ah, lithium manganese dioxide, disposable long-life primary cell
- **Capacity** : Minimum 200 shocks or 4 hours of operating time (25℃)

· AUTOMATED AND USER-ACTIVATED SELF-TESTS
- **Daily Self-Tests** : Tests internal circuitry, waveform delivery system, battery capacity and software
- **Battery Insertion Test** : Upon battery insertion, extensive automatic self-tests and user-interactive test check device readiness

· Data stored
- Maximum 7 events can be saved.
- 1 event can be recorded for 75 minutes
- If 7 events are recorded, maximum recording duration for each event is 5 minutes

· Size : 220 × 281 × 82 (W × L × H, mm)
· Weight : 2.2kg

· Parts & Accessories

Standard Package
- Device
- Multifunction Defib. Pads
- Disposable LiMnO₂ Battery Pack
- User's Guide
- Quick Reference Card

Opition
- Carrying case
- IrDA connector for data communication
- Software for data management with key file
- Wall bracket　　- Wall cabinet

TRAINER

i-PAD NF1200 T1
- 8 standard Rescue Scenarios
- Infrared remote control operation
- Powered by an external disposable battery pack or rechargeable battery pack
- Simulates all the functions of the NF-1200

i-PAD NF1200 T2
- 8 standard Rescue Scenarios
- Powered by AA Battery
- Function Switch
- Simulates all the functions of the NF-1200

Pads Connector Guide & LEDs
- Indicates the position of the pads connector
- Guide the user during rescue operation

Shock Button (NF1200 only)
- Delivers the shock

Information Button
- When pressed, guides the user
- during CPR and system trouble shooting

State LED
- Indicates operational state of the device

Battery Pack
- Disposable LiMnO₂ Battery Pack

IrDA Port
- Used for data communication

Paramedic CU-ER1

(Automated External Defibrillator)

Someone goes down in cardiac arrest, resuscitation is just a hand away...

Patented *e-cube* Biphasic measure impedance and deliver efficient defibrillation shock.

LCD Screen
Displays
- The ECG of patient
- Energy of the shock to be delivered
- Shock count
- Heart rate
- Battery status
- Elapsed time

Key Features

- Intelligent Arrhythmia Detector
- Efficient and effective *e-cube* Biphasic Truncated
  Exponential shock waveform
- Lightweight and highly portable
- Versatile Power Supply
  - Internal rechargeable battery pack
  - External disposable battery pack
  - AC/DC adapter
  - Car cigar lighter jack

- Intelligent data management system
  - ECG of the patient is recorded all throughout
    the rescue operation.
  - Relevant events (e.g. shock advised, charging,
    shock delivery) are recorded together with timestamp.
  - Recorded data may be transferred to a PC for archiving and review.
  - Recorded data may be reviewed in the device.

- Automatic and operator initiated self-tests
  - Power on test
  - Run-time test
  - Daily / weekly / monthly test

Indicator Lamps
Indicates
- Power sources
- Occurrence of system error

SmartMedica Card Port
Nonvolatile memory port for data storage

UART Port
Port for serial data transfer to a PC

IrDA Port
Port for infrared communication with a PC

AC/DC Adapter Port
Port for AC/DC adapter and Car cigar lighter jack

- Size : 305 × 250 × 94 (W × L × H, mm)
- Weight : 2.7kg

Paramedic CU-ERT (AED Trainer)

- 10 standard Rescue Scenarios
- Infrared remote control operation
- Powered by an internal rechargeable battery pack or AC/DC Adapter
- Simulates all the functions of the Paramedic CU-ER1

The CU-ERT is a defibrillator simulator designed to mimic the operations
of the Paramedic CU-ER1. It can simulate all the functions of the Paramedic
CU-ER1 including charging and shock delivery.

Parts & Accessories

Standard Package
- Device
- Defi pads
- Power cord
- AC adapter
- NI-MH battery
- User's guide
- Quick refernce card

Opition
- Carrying case
- SMC card
- Printer
- Cigar lighter jack car
- ECG cable
- Disposable battery pack
- Software for data managing
- Pediatric pads

Paramedic CU-ER2

(Dual Mode Defibrillator)

Someone goes down in sudden cardiac arrest...
Build up more chances of saving lives with Paramedic Series.

Key Features

- AED and Manual Mode Defibrillation
- Synchronized Cardioversion
- ECG Monitoring (3 Lead ECG Cable)
- CPR Coaching in AED
- Lightweight (2.7kg) and highly portable
- Efficient and effective *e~cube* Biphasic Truncated Exponential shock waveform
- versatile Power Supply
  - Internal rechargeable battery pack
  - External disposable battery pack
  - AC/DC adapter
  - Car cigar lighter jack
- intelligent Data Management System
  - ECG of the patient is recorded all throughout the rescue operation.
  - Relevant events (e.g. shock advised, charging, shock delivery) are recorded together with timestamp.
  - Recorded data may be transferred to a PC for archiving and review.
  - Recorded data may be reviewed in the device.
- Automatic and Operator Initiated Self-Tests (power on / run-time / daily / weekly / monthly test)

Variable energy levels selection

Paramedic CU-ER3

(Dual Mode Defibrillator +SpO₂ Monitor)

Key Features

- AED and Manual Mode Defibrillation
- Synchronized Cardioversion
- ECG Monitoring Mode (3 Lead ECG Cable)
- SpO₂ Monitoring (Nellcor SpO₂ Module)
- Heart Rate and SpO₂ Alarm System
- CPR Coaching in AED
- Efficient and Effective *e~cube* Biphasic Truncated Exponential shock waveform
- Lightweight (2.8kg) and Highly Portable
- Versatile Power Supply
- Intelligent Data Management System
- Automatic and Operator Initiated Self-Tests (power on / run-time / daily / weekly / monthly test)

SpO₂ Module (Nellcor)

SPECIFICATIONS CU-ER1, CU-ER2, CU-ER3

Common

- **ECG Monitor**
  - Patient Connection : Defibrillation Pads, ECG Electrodes
  - Bandwidth : Monitoring Mode : 0.3 to 40Hz (-3dB)
  - EMS Mode : 1 ~ 30Hz
  - Heart Rate : Digital 30 to 300 bpm ($\pm$3bpm)
- **Defibrillator**
  - Waveform : *e~cube* Biphasic (Biphasic Truncated Exponential type)
  - Charging Time : Less than 10 seconds
  - Sensitivity & Specificity : Meets AAMI guidelines
  - Defibrillation Electrodes : Multifunctional electrodes (disposable, Pre-gelled)
- **Voice & Text Prompts**
  - Voice Prompts guide the user through the rescue protocol
  - All user interfaces are supported in local language
- **Data Storage & Management**
  - Internal Flash Memory : 12 Hours of event and ECG recording
  - SmartMedia Card(32M) : 42 hours of event and ECG recording or 1 hour if voice recording is enabled
  - Review the Patient ECG, incident details and device information
  - Transmit multi patient data to PC
- **Display**
  - Screen Type : High resolution display (Graphic LCD)
  - Screen Size : 4 inches (10.16 cm) diagonal, 320 X 240 pixels
  - Sweep Speed : 25mm / sec, nominal
  - Viewing Time : 3.2 seconds
- **Automatic Self-Test**
  - Power on Self-Test / Run Time Self-Test / Manual Self-Test
  - Periodic Self-Test (daily/weekly/monthly)

- **AC Adapter**
  - Input : 100 ~ 240V AC 50 / 60Hz 170VA
  - Output : +12V DC 3.6A
- **Battery Pack**
  - 12V 4.5Ah Nickel-Metal Hydride battery pack (Rechargeable)
  - Charging time : Minimum of 4 hours for full charging
  - Capacity : when new, minimum of 200 shock deliveries (Fully charged)
- **External Link**
  - UART port
  - IrDA port

• Parts & Accessories

Standard Package	Optional
- Device	- Carrying case
- Defi pads	- SMC card
- Power cord	- Printer
- AC adapter	- Ciger lighter jack car
- NI-MH battery	- ECG cable
- User's guide	- Disposable bettery pack
- Quick reference card	- Software for data managing
- SpO₂ Probe (only for CU-ER3)	- Pediatric pads

Differences

ECG Monitor		CU-ER1	CU-ER2	CU-ER3
ECG Size	auto-scaled	●	●	●
	5, 10, 20mm/mV		●	●
Defibrillator				
Operating Mode	Semi automatic	●	●	●
	Manual		●	●
Waveform	*e~cube* Biphasic (BTE type)	●	●	●
Energy	AED Mode 150J (default setting)	●	●	●
	Manual Mode : Variable energy levels selection (12 steps escalating, 2, 3, 5, 7, 10, 20, 30, 50, 70, 100, 150, 200J)		●	●
Synchronous Cardioversion	Energy delivery begins within 60ms of the QRS peak		●	●
Control	Manual Mode : CHARGE, SYNC(R-wave), DISARM		●	●
	AED Mode : ANALYZE, PAUSE		●	●
SpO₂				
Pulse Rate	20 ~ 250 bpm ($\pm$3bpm)			●
Saturation	70 ~ 100% ($\pm$3digits)			●
Perfusion	0.2 %			●
Physical				
Size (W X L X H)	254mm X 309mm X 93mm	●	●	●
Weight	Approximately 2.7 kg	●		
	Approximately 2.8 kg		●	●
Patient Isolation	Type BF	●	●	●
Optional Accessories				
ECG Cable	3 Lead	●	●	●
Package Contents				
SpO₂ Module (Nellcor)				●

Paramedic CU-ER5

(Multifunction Defibrillator / Monitor)

The Paramedic CU-ER5 defibrillator / monitor is
designed to accommodate both basic and advanced life support personnel.

❖ Specifications

• Defibrillation
- ECG Lead Select	I, II, III, aVR, aVL, aVF, V, Paddle/Pads, Ext ECG
- Waveform	*e~cube* Biphasic [Biphasic Truncated Exponential type]
- Output Energy	Manual : 1~10J, 15J, 20J, 30J, 70J, 100J, 120J, 150J, 170J, 200J
	AED : 150J [Fixed]
	Internal Paddle : 1~10J, 15J, 20J, 30J, 50J
- Charge Time	Less than 10 seconds to 150J
- Shock Delivery	Via multifunction defib. electrode pads or paddle
- Patient Impedance	Shock range : 25 Ohm ~ 175 Ohm
- AED Mode	Shock advisory sensitivity and specificity meet AAMI DF-80 guidelines
- Synchronous Cardioversion	Energy transfer begins within 60ms of QRS peak
- Voice & Text Prompts	Multi language support

• ECG Monitoring
- Input	Lead I, II, III [3-lead ECG cable]
	Lead I, II, III, aVR, aVL, aVF or V [5-lead ECG cable]
- Heart Rate Display	30 to 300 bpm
- ECG Size	5, 10, 20mm/mV and Auto-gain
- Heart Rate Alarm	Less than minimum setting rate / Over than maximum setting rate
- Waveform Sweep Speed	25mm/sec

• SpO₂ Pulse Oximetry (Nellcor)
- Saturation	70~100% [±3digits]
- Pulse Rate	20~250bpm [±3bpm]
- Perfusion	0.2%

• Power
Internal Battery
- Type	Rechargeable / 12V 4.5Ah Ni-MH battery pack
- Capacity	When new, minimum of 200 shock deliveries [200J]
- Recharging Time	Minimum of 4 hours for full charging

External Battery Pack
- Type	Disposable / 15V 4.2Ah LiMnO₃ battery pack
- Capacity	When new, minimum of 200 shock deliveries [200J]

AC/DC Adapter
- Input	100~240V AC 50/60Hz
- Output	DC 12V, 3.6A
- Car Cigar Lighter	DC 12V

• Physical
- Dimensions	Without eternal paddle : 254*365*105 [mm]
	With external paddle : 455*365*105 [mm]
- Weight	4.7Kg [with external paddle]

• Environmental Requirement
- Temperature	Operation : 0℃ ~ 40℃
	Storage : -20℃ ~ 60℃
- Humidity	5% ~ 95%

External Paddle
[Adult, Pediatric]

• Size : 455 × 365 × 105 with paddle [W × L × H, mm]
• Weight : 4.7kg [with external paddle]

• Display
- LCD Dimensions	4 ″ diagonal [80mm*60mm]
- Type	High resolution mono graphic LCD
- Resolution	320*240 pixels
- Wave Viewing Time	3.2 seconds [ECG]
- Back Light	EL back light

• Data Storage & Management
- Internal Flash Memory	12 hours of event and ECG recording
- Data Card [SMC 32M]	42 hours of event and ECG recording or 1 hours if voice recording is enabled
- Data Transfer to PC	UART / IrDA

• Self-Test
- Power on Self-Test
- Run Time Self-Test
- Manual Self-Test
- Periodic Automatic Self-Test [Daily / Weekly / Monthly]

• Parts & Accessories

Standard Package
- Device
- External Paddle [Adult, Pediatric]
- 3-Lead ECG Cable
- Power Cord
- AC Adapter
- Internal Battery [Ni-MH]
- User's Guide

Options
- Date Card [SMC 32M]
- Thermal Printer
- Printer Paper [10 rolls]
- Cigar Lighter Jack for Car
- Multifunction Defib. Pads
- Adapter for Defib. Pads
- 5-Lead ECG Cable
- ECG Electrodes [50EA]
- SpO₂ module set [probe, extension cable]
- Disposable Battery Pack [LiMnO₃]
- IrDA Adapter for Data Communication
- Software for Data Management with Key File [UART Cable included]

LiFEGAIN CU-HD1

(Multifunction Defibrillator / Monitor)

Someone goes down in cardiac arrest, resuscitation is just a hand away...

Key Features

- Efficient and *e~cube* Biphasic Biphasic technology (BTE Type)
- Manual and AED operation
- Defibrillation using paddles, pads or internal paddles
- ECG Monitoring (3-Lead ECG / 5-Lead ECG / 10-Lead ECG)
- SpO$_2$ pulse oximetry with alarms (Nellcor)
- Noninvasive pacing mode
- NIBP (Non-Invasive Blood Pressure)

❖ Specifications

• Display

- LCD Dimensions : 7 inch Diagonal (152mm * 91mm)
- Type : TFT Color
- Resolution : 800 * 480 pixels

• Defibrillation

Defib Common
- Waveform : Truncated Exponential Biphasic (e~cube)
- Charge Time : Adapter : Less than 5 seconds to 200 Joules
              Battery : Less than 7 seconds to 200 Joules

AED Mode
- Output Energy : 200J
- Shock Delivery : Via multifunction defib electrode pads
- AED Develop Guideline : Shock advisory sensitivity and
                        Specificity meet AAMI DF-80 guidelines
- Voice & Text Prompts : Guide the user through the protocol
                        via multifunction defib electrode pads

Manual Mode
- Output Energy : 1~10J, 15J, 20J, 30J, 50J, 70J, 100J, 120J,
  (Selected)   150J, 170J, 200J
- Shock Delivery : External paddle (with Pediatric) / Internal paddle
- Synchronous Cardioversion

• Printer

- Continuous ECG Strip : Real-Time (8 seconds delay)
- Auto Printing : Recorder can be configured to print marked
                event, charge, shock and alarms
- Printing Speed : 25mm/s
- Paper : 50mm Width / 40mm Diameters

• Automatic Self-Test

- Power On Self-Test
- Run Time Self-Test
- Manual Self-Test
- Periodic Self-Test (Daily / Weekly / Monthly)

• Data Storage

- External memory card
  : SD Card (ECG data, Event, Voice)

• Power Source

External Battery Pack : Lithium Polymer
- Type : 14.8V 3.1Ah (Rechargeable)
- Capacity : When new, minimum of
            100 shock deliveries (200J)

AC Power Pack
- Output : 18V, 6A

• Noninvasive Pacing

- Waveform : Monophasic Truncated Exponential
- Mode : Demand and Fixed Mode
- Amplitude Accuracy : 0 ~ 200mA (±5mA)
- Pulse Width : 20ms (±1.5%)
- Pulse Rate : 30 ~ 180ppm (±1.5%)
- Refractory Period : 340 msec (30 to 80 ppm)
                    240 msec (90 to 180 ppm)

• SpO$_2$ Pulse Oximetry

- Saturation : 70 ~ 100% (±3digits)
- Pulse Rate : 20 – 250 bpm (±3bpm)
- Perfusion : 0.2%
- Module Manufacturer : Nellcor
- SpO$_2$ Alarm : Less than Minimum setting rate
              Over than Maximum setting rate

• NIBP

- Patient Population : Adult, Pediatric, Neonate
- Method : Oscillometric
- Control : Autometic and manual measurements
- Auto Intervals : 1, 3, 5, 10, 15, 30, 60, 120 min
- Displayed Pressures : Systolic, Diastolic, MeanmmHg
- Displayer Units : Adult : 40 to 260 mmHg
                  Pediatric : 40 to 160 mmHg
                  Neonate : 40 to 130 mmHg
- Systolic Range : Adult : 20 to 200 mmHg
                 Pediatric : 20 to 120 mmHg
                 Neonate : 20 to 100 mmHg
- Diastolic Range : ±3mmHg
- Pressure Transducer : Adult : 300 mmHg
  Accuracy   Pediatric : 300 mmHg
                      Neonate : 150 mmHg
- Redundant Circuit Overpressure Limit

• ECG Monitoring

- Input : 3-Lead Cable : I, II, III
          5-Lead Cable : I, II, III, aVR, aVL, aVF or V
          10-Lead Cable : I, II, III, aVR, aVL, aVF or V1, V2, V3, V4, V5, V6
          (Display View : All 12-Lead ECG waves display simultaneously)
- Lead Fault : "Lead Fault" message and dashed line display, if an electrode or lead wire becomes disconnected
- Heart Rate Display : 30 to 300 bpm (±3bpm)
- ECG Size : 5, 10, 20mm/mV and Auto-gain
- Heart Rate/Arrhythmia Alarm : HR, Asystole, VF, VT

• Size : 318 × 208 × 355 (W × L × H, mm)
• Weight : 5kg (with external paddle)

• Parts & Accessories

Standard Package
- Device
- External Paddle
  (Adult, Pediatric)
- 3 Lead ECG cable
- ECG electrodes
- Defi pads & Adaptor
- Built in printer
- Power cord & SMPS
- Internal Battery
- Gel
- User's Guide

Option
- Carrying case
- SD card
- SD card reader
- Pediatric pads
- 5 Lead ECG cable
- Car cigar lighter jack
- SpO$_2$ Module Set
- Pacer
- 10 Lead ECG cable
- NIBP (Non- Invasive
  Blood Pressure)
- Software for data
  management (CU-EX2)