ConTracer-D

Smart Logistics Solution

User's Manual
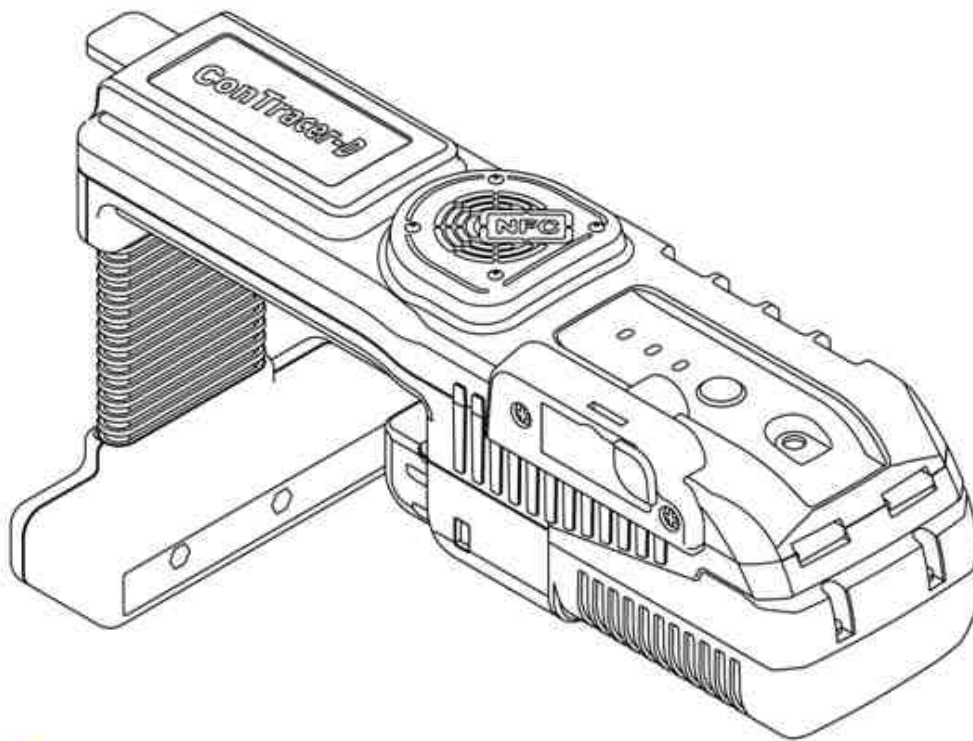
Swinnus
SMART LOGISTICS SOLUTION
PROVIDER

Contents

1. Before use

1.1 Introduction

○ Please read this manual in detail before use.

○ Please recharge this device through enclosed adaptor.

○ Please ask designated maintenance team for after-sales service, if you disassemble a device by yourself, A/S is not available.

1.2 Device component

○ A ConTracer is composed as follows.

2. Device Introduction

2.1 Specification

Division	Item	Details
Device	Size	258mm×134mm×73mm
	Weight	880g (including battery)
MCU	CPU	ARM 32-bit Cortex™-M3 CPU
	Memories	64 Kbytes of general-purpose SRAM
		256 Kbytes of Flash memory
	operating Voltage	2.0V~3.6V
Communication	Mobile Communication	GSM Quad-band, WCDMA (Except certain areas)
		850MHz, 900MHz, 1800MHz, 1900MHz, 2100MHz
	Location	GPS supported
		GPS freq. : 1575.42 MHz
	Wireless	NFC supported
		NFC freq. : 13.56 MHz
Antenna	Type	PIFA(WCDMA/GSM), Ceramic(GPS), Loop(NFC)
LED	LED	3 colar LED (RED, Yellow, Green)
Battery	Type	rechargeable Lithium-Ion (18,000mAh / 3.7V)
	Charger	Input : AC100~240V, 50/60Hz, 1.7A Output : DC 12V, 3.33A
I/O Port	mini B-Type USB	Device setup and checking log
	Power Jack	Power in

2.2 ConTracer-D Features

○ Information transmission

　• Real time based information transmission using GSM/WCDMA

　　- Available for Global information transmission using roaming service

　• In the shadow zone of mobile communication,

　　- Information is saved in the internal memory of ConTracer-D

　　- That information is transmitted at once in the next information transmission cycle

○ Identification of positional information

　• Real time based positional identification using GPS.

○ Identification of container internal condition & door open/close

　• Sensing internal temperature, humidity, and shock of container

　• Identification of open/close state of container door (possible to detect when door is opened over 2 inches)

○ Information storing

　• Available for storing about 2,000 of data information in the internal memory of ConTracer-D

○ Supporting remote setup

　• Change of information transmission cycle

　　- From 3minutes to 24hours, to the 3minutes

　• Power off

　• Delete internal information which is stored

　• Changing for IP, Port of positional information server

○ Time synchronization using internal RTC(Real Time Clock)

○ Notifying condition using LED & buzzer

　• LED

　　- 3-colored LED(red, green, blue)

　　　: Notifying battery state (LED Turned off after 3 seconds)

　　　► Need to charge (battery residual quantity ≤ 3.5V) : red LED on

　　　► No need to charge (battery residual quantity ≥ 4.0V)

　　　: green LED on

　　　: Communication status display

　　　► First receiving of positional information after device is turned on

　　　: blue LED on

　　　► During data transmission after first communication

　　　: yellow LED on

　　　► During receiving information in the process of turning the device off
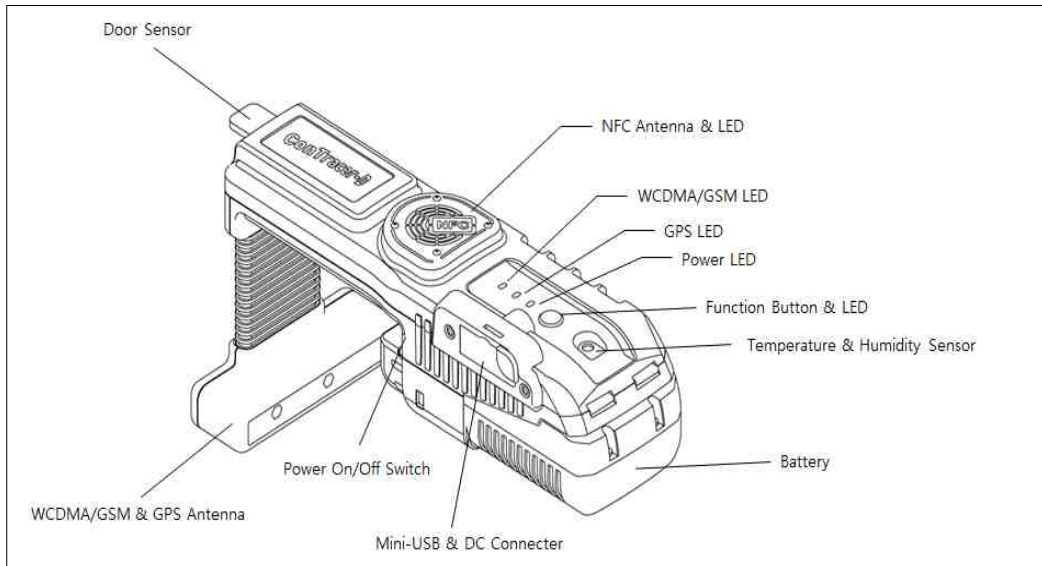
　　　: red LED on

※ For identifying condition of power On/Off,

when the device is turned on, yellow and red LED is activated for few seconds and then blue LED is displayed.

　• Buzzer

　　- Buzzer makes a sound according to operated condition of device

2.3 Name of each part

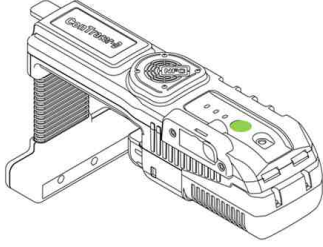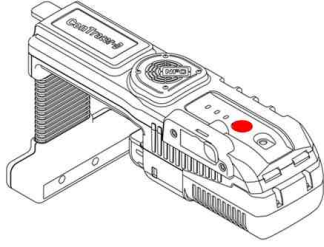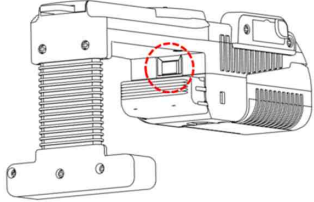| Name	Description		Remark	
Power On/Off Switch	Toggle Switch for power on and off		Power switch (connected with the MCU)	
Function Button & LED	Condition	Description		
	Power OFF	check the battery status	LED color	Battery Level
			Green	≥ 4.0V
			Blue	3.8V ~ 3.9V
	Power ON	check the battery status	Yellow	3.6V ~ 3.7V
			Red	≤ 3.5V
		NFC Activation	Activation : Detection standby	
WCDMA/GSM & GPS Antenna	Antenna mounting portion for the WCDMA / GSM communication and GPS.			
NFC Antenna & LED	Portion for NFC card detection		NFC LED Color	Status
			White	Detection standby
			Green	Available NFC card
			Red	Invalid NFC card
Power LED	LED for device operating status		ON : Working / OFF : Not working	
GPS LED	LED for gps signal receiving status		Toggle : GPS signal is received	
WCDMA/GSM LED	LED for WCDMA/GSM communication status		Toggle : WCDMA/GSM network is connected	
Door Sensor	Container door sensor for checking the door Open/Close.			
Temperature & Humidity Sensor	Sensor for checking external temperature and humidity of the device			
Mini-USB & DC Con.	Charging / FW Upgrade / Setting & check Log			

※ Shock Sensor is built into the PCB.

2.4 Basic setup

○ Information transmission cycle

　• Initial transmission cycle is set up to the 3 minutes

　☞ Available for changing IP, Port through remote setup in the CTMS or USB control program

○ Positional information transmission server IP, Port

　• IP & Port of positional information transmission server is basically set up "211.220.195.231:9997", if there is not additional request of user

　☞ Available for changing IP, Port through remote setup in the CTMS or USB control program

○ Waiting time for receiving positional information

　• Waiting time for receiving positional information is set up 3 minutes

　☞ Available for changing waiting time for receiving positional information through CTMS

○ Setup range of shock sensing & marginal value

　• Range of shock sensing & marginal value : up to 16g

　　- Storing status log and transmitting information when shock which is over marginal value

3. How to use

3.1 Operation

Division	Details
Checking battery residual quantity	 < Battery level ≥ 4.0V > < Battery level ≤ 3.5V > · Press Function button once (lightly)
Device on/off	 · Toggle the power switch to the ON/OFF position ► Power ON : Starting melody is played : Power & WCDMA/GSM LED on : Touch the NFC card to the NFC antenna area, after push the "function button" to activate NFC feature. Then the NFC information is inserted in the start packet. ※ If you do "Power Off" While performing the "Power On" process, the device is being reset immediately. ※ If you do not install the equipment in the container after Power ON, Door status is indicated by "None". ► Power OFF : Ending melody is played : Touch the NFC card to the NFC antenna area, after push the "function button" to activate NFC feature. Then the NFC information is inserted in the end packet. : when shutdown process is complete Beep sound occurs once.

○ Items to be confirmed before use

• Condition of battery charge before attaching on container
  - Press "Function" button slightly(1~2seconds), and check condition of battery charge through LED color (green : ≥ 4.0V, red : ≤ 3.5V)

• Checking cycle of information gathering and log data which is stored in existing device
  - Battery life is depending on cycle of information gathering (Person who is in charge of managing device has to set up cycle of information gathering by checking schedule before operating device)
  - Existing log data should be operated after backup through USB control program

○ Device operating

• Toggle the power switch to the ON position.
  - Power on → LED color displays in yellow and red

• Attaching inside of container
  - Antenna should be positioned outside of container → closing container door

• When arriving at destination, Toggle the power switch to the OFF position.

○ Device charging

• Press "function" button slightly (1second), and check condition of battery charge through LED color
  ※ If LED color is red, battery has to be charged

• battery is charged when device(power off) is connected to adaptor
  - Time for charging of dead battery : Maximum 20 hours (mass battery of 18,000mAh)

- When battery is charging, green light means battery is $\geq$ 4.0V, and red light means battery is $\leq$ 3.5V

- When battery is perfectly charged, green color is displayed.

3.2 Installation
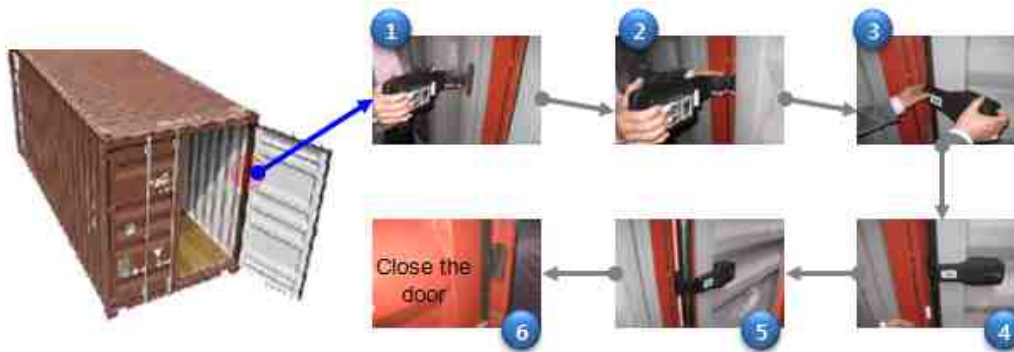
Order	Details
Ready	· Open right side of container door ※ Device should be attached right side door for identifying condition of door's open and shut
①	· Checking position for attaching device(right side of the door) · Antenna should be exposed to outside of container door
②	· Toggle the power switch to the ON position
③	· Attaching device on container door
④	· Checking status of attached device
⑤	· Closing the container door
⑥	· Checking exposed antenna and attaching completion

4. A/S

082-51-747-8933

5. Caution

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

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Caution: Exposure to Radio Frequency Radiation.

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

※ 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.