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ILC 3000 USER GUIDE

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1. Regulatory Statements and Notices

Common/Generic

Modifications not expressly approved by Crossbow could void the user's authority to operate the equipment.

Les modifications non expressément approuvés par Crossbow pourrait annuler l'autorité de l'utilisateur de faire fonctionner l'équipement.

Radiofrequency radiation exposure Information:
This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux normes FCC et IC limites d'exposition aux rayonnements définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20cm entre le radiateur et votre corps. Cet émetteur ne doit pas être co-localisés ou fonctionner en conjonction avec une autre antenne ou transmetteur

For USA/FCC and Canada/IC:

This device complies with Part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard(s). 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.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le onctionnement.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

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If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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For European Community (EC)

CE 0682

Czech	Crossbow Technology Inc tímto prohlašuje, že tento ILC3000 je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Danish	Undertegnede Crossbow Technology Inc erklærer herved, at følgende udstyr ILC3000 overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Dutch	Hierbij verklaart Crossbow Technology Inc dat het toestel ILC 2000 in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
English	Hereby, Crossbow Technology Inc, declares that this ILC 2000 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Estonian	Käesolevaga kinnitab Crossbow Technology Inc seadme ILC 2000 vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
German	Hiermit erklärt Crossbow Technology Inc, dass sich das Gerät ILC 2000 in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Greek	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Crossbow Technology Inc ΔΗΛΩΝΕΙ ΟΤΙ ILC 2000 ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Hungarian	Alulírott, Crossbow Technology Inc nyilatkozom, hogy a ILC 2000 megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Finnish	Crossbow Technology Inc vakuuttaa täten että ILC 2000 tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

French	Par la présente Crossbow Technology,Inc déclare que l'appareil ILC 3000 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Icelandic	Hér með lýsir Crossbow Technology, Inc yfir því að ILC 3000 er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC
Italian	Con la presente Crossbow Technology, Inc dichiara che questo ILC 3000 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latvian	Ar šo Crossbow Technology, Inc deklarē, ka ILC 2000 atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lithuanian	Šiuo Crossbow Technology, Inc deklaruoja, kad šis ILC 2000 atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Maltese	Hawnhekk, Crossbow Technology, Inc, jiddikjara li dan ILC 2000 jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Norwegian	Crossbow Technology, Inc erklærer herved at utstyret ILC 2000 er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.
Polish	Niniejszym Crossbow Technology, Inc oświadcza, że ILC 2000 jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC
Portuguese	Crossbow Technology, Inc declara que este ILC 2000 está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovak	Crossbow Technology, Inc týmto vyhlasuje, že ILC 2000 spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Slovenian	Crossbow Technology, Inc izjavlja, da je ta ILC 2000 v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Spanish	Por medio de la presente Crossbow Technology, Inc declara que el ILC 2000 cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Swedish	Härmed intygar Crossbow Technology, Inc att denna ILC 2000 står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

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2. Customer Considerations/Safety

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Accessory: This product is supplied by a Listed Power Unit marked "Class 2" or "LPS" with an output rated 5 VDC, 500 mA (USB charger).

Battery Safety information

UN regulation
- UN number: 3480 (3481 when the battery is contained in equipment or packed with equipment)
- Proper shipping name:
    - Lithium ion batteries ("lithium ion batteries contained in equipment" or "lithium ion batteries packed with equipment")
- Class: 9
- Packing group: II *

** However this product is defined as above, it is **not** recognized as "DANGEROUS GOODS" or is treated as almost non-DANGEROUS GOODS when its transport condition accords with instructions or provisions depend on region and transportation mode.*

About the instructions or provisions, please see descriptions in box brackets of following regulations.

Regulation depends on region and transportation mode
- Worldwide, air transportation:
    IATA-DGR [As non-DANGEROUS GOODS: "packing instruction 965 section II" / Almost as above however displayed as DANGEROUS GOODS: "packing instruction 965 section IB"]
    (When batteries are packaged with equipment or contained in equipment, refer packing instruction 966 or 967 instead of 965.)
- Worldwide, sea transportation:
    IMO-IMDG Code [special provision 188]
- Europe, road transportation:
    ADR [special provision 188]

3. Safety Precautions

The following safety precautions must be observed during all phases of the operation, usage, service or repair of any cellular terminal or mobile incorporating ILC3000 Manufacturers of the cellular terminal are advised to convey the following safety information to users and operating personnel and to incorporate these guidelines into all manuals supplied with the product. Failure to comply with these precautions violates safety standards of design, manufacture and intended use of the product. Moog- Crossbow Wireless Device assumes no liability for customer's failure to comply with these precautions

When in a hospital or other health care facility, observe the restrictions on the use of mobiles. Switch the cellular terminal or mobile off, if instructed to do so by the guidelines posted in sensitive areas. Medical equipment may be sensitive to RF energy.
The operation of cardiac pacemakers, other implanted medical equipment and hearing aids can be affected by interference from cellular terminals or mobiles placed close to the device. If in doubt about potential danger, contact the physician or the manufacturer of the device to verify that the equipment is properly shielded. Pacemaker patients are advised to keep their hand-held mobile away from the pacemaker, while

Switch off the cellular terminal or mobile before boarding an aircraft. Make sure it cannot be switched on inadvertently. The operation of wireless appliances in an aircraft is forbidden to prevent interference with communications systems. Failure to observe these instructions may lead to the suspension or denial of cellular services to the offender, legal action, or both.

Do not operate the cellular terminal or mobile in the presence of flammable gases or fumes. Switch off the cellular terminal when you are near petrol stations, fuel depots, chemical plants or where blasting operations are in progress. Operation of any electrical equipment in potentially explosive atmospheres can constitute a safety hazard.

Your cellular terminal or mobile receives and transmits radio frequency energy while switched on. Remember that interference can occur if it is used close to TV sets, radios, computers or inadequately shielded equipment. Follow any special regulations and always switch off the cellular terminal or mobile wherever forbidden, or when you suspect that it may cause interference or danger.

SOS IMPORTANT!

Cellular terminals or mobiles operate using radio signals and cellular networks.
Because of this, connection cannot be guaranteed at all times under all conditions.
Therefore, you should never rely solely upon any wireless device for essential communications.

Remember, in order to make or receive calls, the cellular terminal or mobile must be
switched on and in a service area with adequate cellular signal strength.
Some networks do not allow for emergency calls if certain network services or phone
features are in use (e.g. lock functions, fixed dialing etc.).
Some networks require that a valid SIM card be properly inserted in the cellular terminal
or mobile.

4. Intended Purpose

The ILC3000 is a portable and rugged identification, Location, and Condition (ILC) tracking device configured with GPS, cellular and sensor technology. It was developed to bring near real-time visibility to shipments and assets in transit. The ILC3000 requires no on the ground infrastructure, hand held readers or changes to existing processes.

5. Description

The ILC3000 is a full feature cargo monitoring and tracking solution with a robust sensor array optimized for high value and temperature sensitive shipments. It is compatible with 3G networks (GSM/GPRS/UMTS/HSPA+), is WiFi and Bluetooth enabled and derives position information from GPS and/or cellular networks for greater coverage. The ILC3000 will give you the identification, location and condition of your assets. The device provides complete near real-time communication solutions for air cargo, truck and trailer fleets, and containers. Our best-in-class sensor suite will allow tracking, recovery and environmental sensing to monitor your most valuable assets while in transit.

Moving high-value, environmentally sensitive shipments or monitoring reusable assets is where the ILC3000 brings value. Constant surveillance coupled with exception alerts adds an additional layer of security and supply chain integrity for shippers and shipping companies. Whether you are a carrier, logistics provider or an end user monitoring your own shipments, the ILC3000 is designed to be portable and adaptable for multiple modes of transportation.

6. Key Features

- Worldwide 3G radio networks (GSM/GPRS/UMTS/HSPA+) and location tracking

- Wi-Fi and Bluetooth enabled

- Robust sensor suite for monitoring Temperature, Pressure, Shock, Humidity, Inclination and Tampering

- Automatic on/off aircraft mode detection; compliant FAA/EASA standards

- Long life rechargeable battery with extended battery support

- Standards based communication (IP/XML) to back end server

- Scalable cloud based device management

7. Charge Battery and Power up the Device

1. Fully charge the device by plugging the Micro USB wall charger into Micro USB port of the device. The charging status is indicated by the status LED (Fig.1). During charge LED is blinking green. The device can also be charged by a custom made Rack Charger.

2. When the device is fully charged (may take a few hours) the status LED will turn to solid green. Disconnect the Micro USB cable from the device or remove the device from Rack Charger.

3. Push and hold down the Power Button till seeing the white LED blinks, then release the Power Button. The device will be powering up. During power up device will display next color pattern on LED: white -> blue

4. During device operation status LED may show different color patterns which are specific to the functions device performs at the moment – location acquisition, sending reports to the web server, hibernation.

5. Device will send the data to the web server as long as it is turned on and has GSM or WiFi coverage.

Fig. 1: Power Button & Status LED
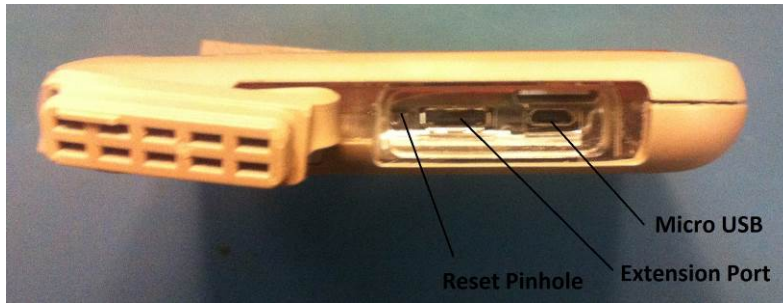
Fig 2: RESET Pinhole and Micro USB

The Micro USB port is used for battery charging and maintenance functions only.

Fig 3: Metal Contact for Rack Charger

8. LCD Display

The LCD module usually is turned off to save battery life. While device is running the application, pushing Power Button until yellow LED turned on which will turn the LCD on. The LCD will show the current Date and Time and a battery bar indicates the battery capacity. Both GPS and some sensor's values will be displayed on the LCD as well (Fig. 4)

Fig 4: LCD Display

9. Viewing Data on GeoView

Follow these simple steps to start viewing data on GeoView from your ILC3000 device

1. To view the data from the ILC3000, open a browser and go to https://moog.seecontrol.com/ to login using the user name and password provided by Moog Crossbow.

2. GeoView offers a familiar and intuitive web browser based (Internet Explorer, Firefox, Chrome) interface for location tracking and sensor data visualization. The location tracking is presented through Google Maps UI via the following tabs.

   - **Track Device Asset** – Select an ILC3000 device to create an active asset associated with an Asset ID for tracking.

   - **Active Assets** - Show all the created active asset sorted by Asset ID.

   - **Crumb Trail** – Track and display the active assets. You can also plot different sensor data for specified period of time/date for each active asset.

   - **Configure** – Allows customer admin to create operation profiles such as data reporting interval, alert profile, and geofence alert profile which will be used when creating an active asset in the "**Track Device Asset**" Tab.
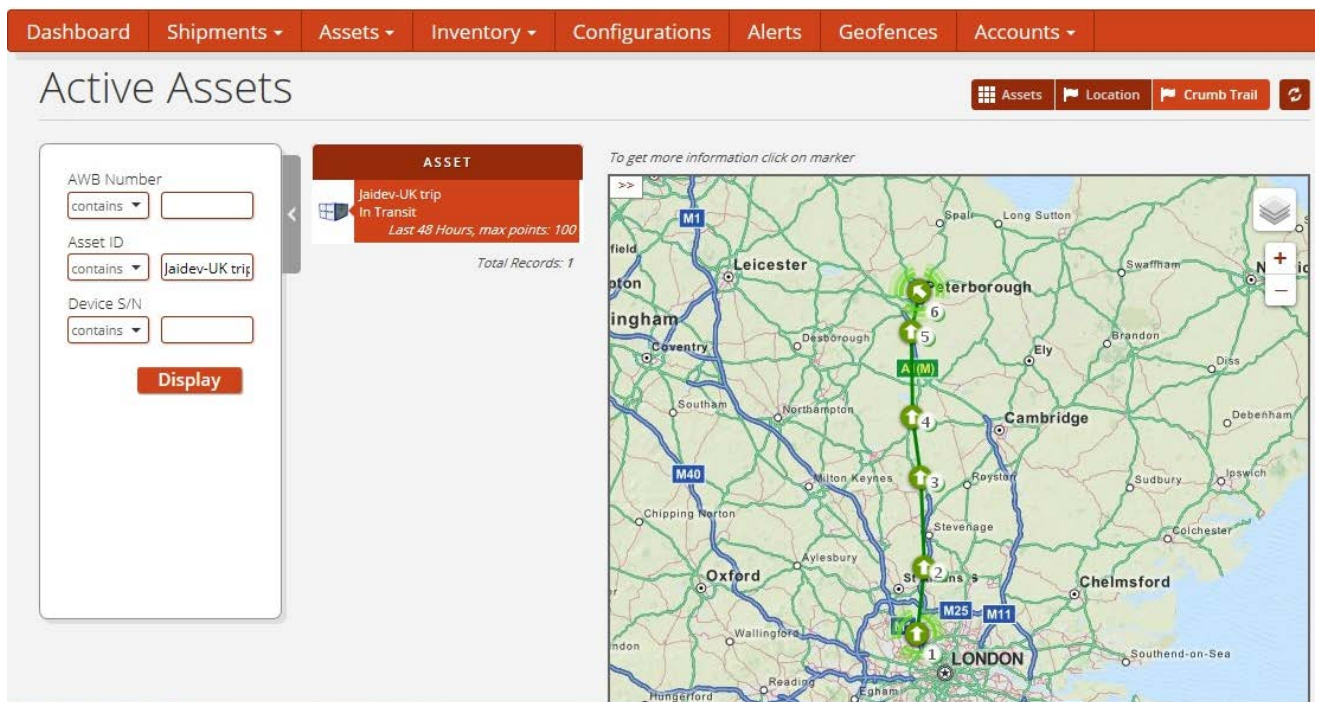

Fig. 5 Viewing ILC3000 Tracking Data

10. Resetting the device

To reset (restart application) device using a paperclip, push paperclip gently into RESET pinhole (fig. 2) and remove it.

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11. Powering down the Device

Power off/down the device while not in use by holding down the Power Button till you see the yellow LED, then White LED then release the Power Button. The device will be turned off and LCD will display "DEVICE POWERED DOWN" message.

Fig 6: Device Powered Down

12. Powering up the Device

While in power down mode press and hold the Power Button till you see the white LED blinks , then release the Power Button. The device will be powering up. During power up device will display next color pattern on LED: white -> blue

13. Update applications firmware and default configuration

The followings description outlines the required steps for the user to update the release firmware and device configuration parameters onto ILC3000 device.

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1. Enable mass storage functionality on the device using either of next two methods:

    a. While pressing and holding down the Power Button (Fig. 1) which locates under the LCD display, use a paper clip to push RESET pinhole (Fig. 2) once to reset the device. You will see the status LED start blinking in Red. Then, release the Power Button.

    b. Follow the "Powering Down the Device" procedure described above to power down the device.

2. Connect micro USB cable from your computer to ILC3000 micro USB port. In 30 seconds PC should detect device as a removable disk. Please note that Windows may ask for the driver installation. Just to click **Cancel**

3. Copy provided *.GIB file onto removable drive. GIB file is file, which contains device's application binary image and default configuration parameter settings.
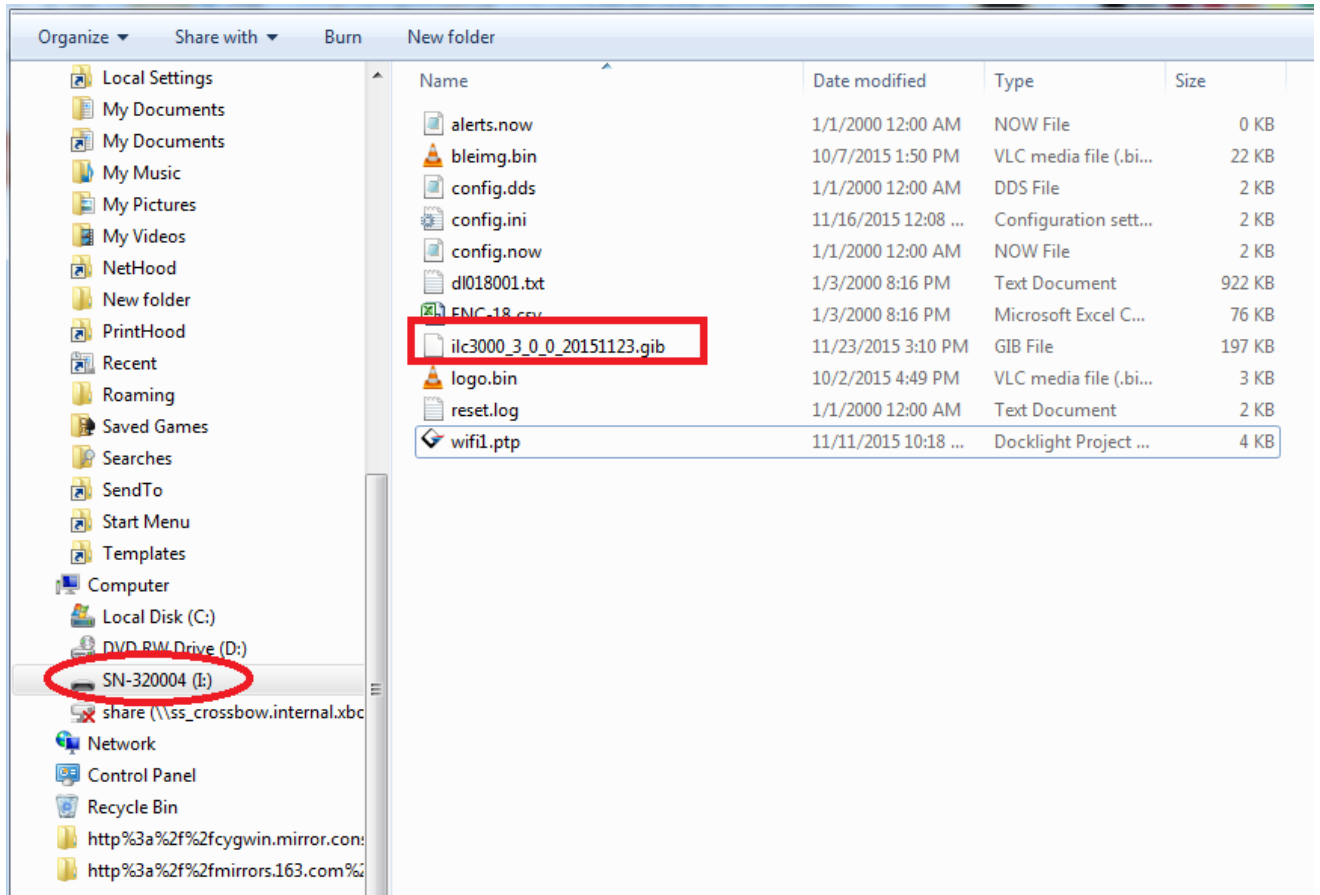
4. To start up the new updated application, reset device by pushing paperclip into RESET pinhole or press and hold Power Button until LED starts to blink white and then release power button.

5. During powering up .GIB file will be processed by device. Device validates the file's contents and copies application/configuration images to specific CPU FLASH partitions. After successful update, .GIB file will be removed and will be given to application.

14. ILC3000 configuration initialization sequence

ILC3000 configuration sequence consists of next steps:

a) Device applies DEFAULT configuration. Default settings are reflected in the file config.dds, which created during application startup and can be found on the internal SD card.

b) Configuration settings from CONFIG.INI file on internal SD card (if exists) override default settings.
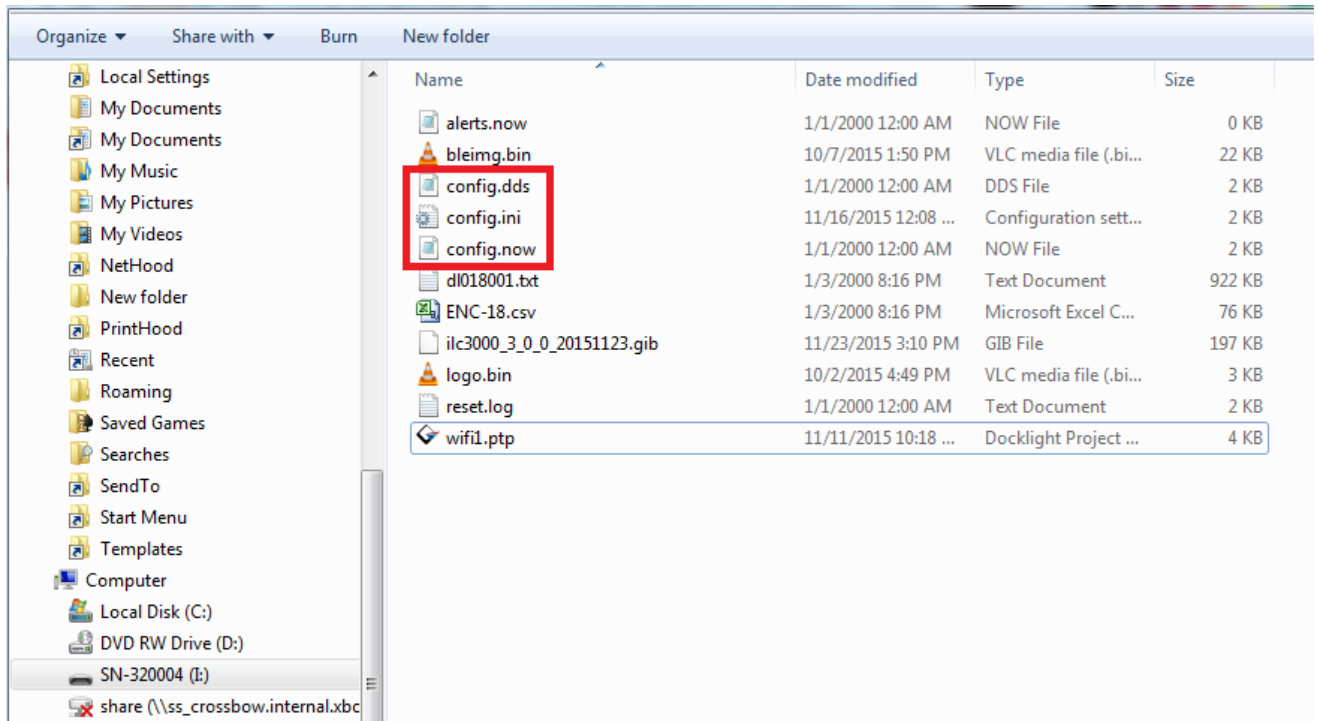
c) REMOTE (sent from server) Configuration File (if exists), overrides local settings (DEFAULT+ CONFIG.INI).

d) Any time during device reporting procedure, server can indicate, that it has new configuration for the device. In this case device will upload new configuration, apply it and save it in REMOTE Configuration File partition in internal FLASH.

Note1: REMOTE configuration can be disabled locally on the device. In this case device will not update configuration from server and will not apply REMOTE Configuration parameters.

Note2: Each of Configuration files can contain any number of desired configuration parameters in any order. During configuration procedure and configuration update, provided parameters override existing. All other parameters stay the same.

e) After application starts up, the CONFIG.NOW file will be created. This file contains the most current active operating parameters which are for reference only. Changing or updating this file will NOT affect the device configuration parameters.

15. Appendix A

Specifications

Network Communication	Quad band GSM/GPRS(GSM 850/900/1800/1900MHz)
GPS	Channels 50, Frequency L1, Signals GPS C/A Code
Charging Port	USB / 8-Unit Rack Charger
Extension port	External Temperature Sensor (misc) (Fig:2)
Battery Capacity	Li-Ion 1880mA-Hr
Aircraft Mode	(Auto on/off) FAA Compliant
Durability	IP65 (Splash Proof)
	>100G Shock Durability
Device UI	LEDs/On-Off Button
	LCD Status Display
	USB Disk Logging
Physical	Dimensions: 114mm x 114mm x 22mm
	Weight 213g
Operating Temperature	-20°C ~ +60°C
Operating Voltage	3.2V-4.5V
RoHS	Compliant

Performance

Location

Location Accuracy (GPS) ± 6m (Static, Under Good Signal)

Power

Battery Life: Default Motion Hibernate Mode 8-10 Days (Typical)
Battery Life: 8-hr Updates, w/ Real-Time Alerts 60 Days
Charging Time 2 Hrs (Rack Charger)

Sensors

Tampering Alert/Light Sensor < 20 lux
Temperature Sensor ± 0.50°C from -18°C to +60°C
NIST Certified
Shock Sensor Configurable to 16G
Free-fall Detection
Tilt / Orientation Detection Sensor Orientation Change

Exception Reporting

Location Alerts Notification at Reporting
Interval
Sensor Alerts Real-Time/Instantaneous
Exception Notification

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16. Appendix B

For more information
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www.moog-crossbow.com
Moog Crossbow
1421 McCarthy Blvd.
Milpitas, CA 95035
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Specifications subject to change without prior notice

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions: this device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la Partie 15 des règlements de la FCC et RSS-210 d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes: cet appareil ne peut causer d'interférences nuisibles, et ce dispositif doit accepter toute interférence reçue, y compris les interférences qui peuvent provoquer un fonctionnement indésirable.

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