



Wireless Digital Concentrator

(NDC-I331)

Product Description

Revision 1.0



NDC-I331 Product Description

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NURI Telecom Co., Ltd.

Nuri Bld, 750-14, Bangbae-dong, Seocho-gu, Seoul, Korea, 137-060

Tel: (02) 781-0777

Fax: (02) 781-0704

E-mail: aimiradm@nuritelecom.com

Website: <http://www.nuritelecom.com>

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NDC-I331 Product Description

1. Overview

The NDC-I331 DCU is a Wireless Digital Concentrator applied with wireless technologies (ZigBee, GSM/GPRS). It collects and saves data, including metering data, location and alarm, and executes the commands from sensor, the concentrator itself, by analyzing the commands from server by transferring this data to the relevant server (FEP: Front End Process) over the pre-defined Protocols, such as GSM/GPRS and CDMA.

This guide is based on the NDC-I331 DCU Hardware and describes its features, configurations, connections and operations.

1.1 Main Feature and Characteristics

- Support of various communication interfaces including ZigBee, GSM/GPRS, LAN, Serial.
- Support of Console Serial Port
- Support of External Ethernet Port (10/100/1000Mbps)
- Manage and control of up to 100 ZigBee Modems/Meters
- Various Application Server Connections
- Self-diagnostics for Power, Temperature, and Operation status of each communication interface
- Operation/management when the power goes off (equipped with Ni-ion Battery) and Power-off notification to Server.
- Remote settings and controls for the NDC-I331 DCU and ZigBee Modems/Meters.

1.2 Product Applications

- AMR System
- Home Network System
- Real Time Location Bases Service (LBS) System
- ZigBee Speedline™ Service System
- Other Remote AMR and Control System

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1.3 Appearance

- Front



[Fig. 1-1] Front

- Top & Bottom



[Fig. 1-2] Top



[Fig. 1-3] Bottom

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2. Hardware Specification

2.1 General Specification

Item	Description
Processor	ARM Cortex-A8 32Bits RISC Processor
Memory	DDR2 512MB
	FLASH 1GB, Serial Flash 16MB
Interface	LAN/10,100,1000M bps, RS-232(Console)
RF Interface(ZigBee)	Async logic level
RF Antenna(ZigBee)	4dBi Omni-directional
RF Interface(GSM/GPRS)	Async logic level
RF Antenna(GSM/GPRS)	900Mhz: 1dBi, 1800Mhz: 4dBi Omni-directional
Operating Temperature / Humidity	-40 °C ~ +70 °C / 10% ~ 95%
Storage Temperature / Humidity	-40 °C ~ +80 °C / 10% ~ 95%
Power Consumption @ AC 220V/60Hz	Normal Operation: 5 W
	Charging state: Max 13W (Charge Current : 350mAh)
Back up Battery	Rechargeable Li-Ion Battery 3.7V(4400mAh)
RoHS	Comply
Weight (g)	900
Size (mm)	256(L) X 130(W) X 75(D), not include Antenna
AC Main Input	AC 100 ~ 240V, 50/60Hz

2.2 ZigBee Interface(Coordinator) Specification

Item	Description
Frequency Range	2.4000 ~ 2.4835 GHz
Standard	IEEE Std. 802.15.4
RF Power (ERIP Standard)	20 dBm
Receive Sensitivity	Below -100 dBm

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2.3 GSM/GPRS Interface Specification

Item	Description
GPRS Connectivity	Multi-slot Class 10, Mobile station Class B
Frequency Band	Telit Quad Band : GSM850, EGSM900, GSM1800/1900
RX Frequency(MHz)	GSM850 : 869.2~893.8, EGSM900 : 925.2~959.8 GSM1800 : 1805.2~1879.8, GSM1900 : 1930.2~1989.8
TX Frequency(MHz)	GSM850 : 824.2~848.8, EGSM900 : 880.2~914.8 GSM1800 : 1710.2~1784.8, GSM1900 : 1850.2~1909.8
TX Power	Class 4(2W) at EGSM900 and GSM850 Class 2(1W) at GSM1800 and GSM1900
RX Sensitivity	GSM850 : -107dBm, EGSM900 : -107dBm GSM1800 : -106dBm, GSM1900 : -105.5dBm





3. Configuration

3.1 Configurations

This product is configured with following components

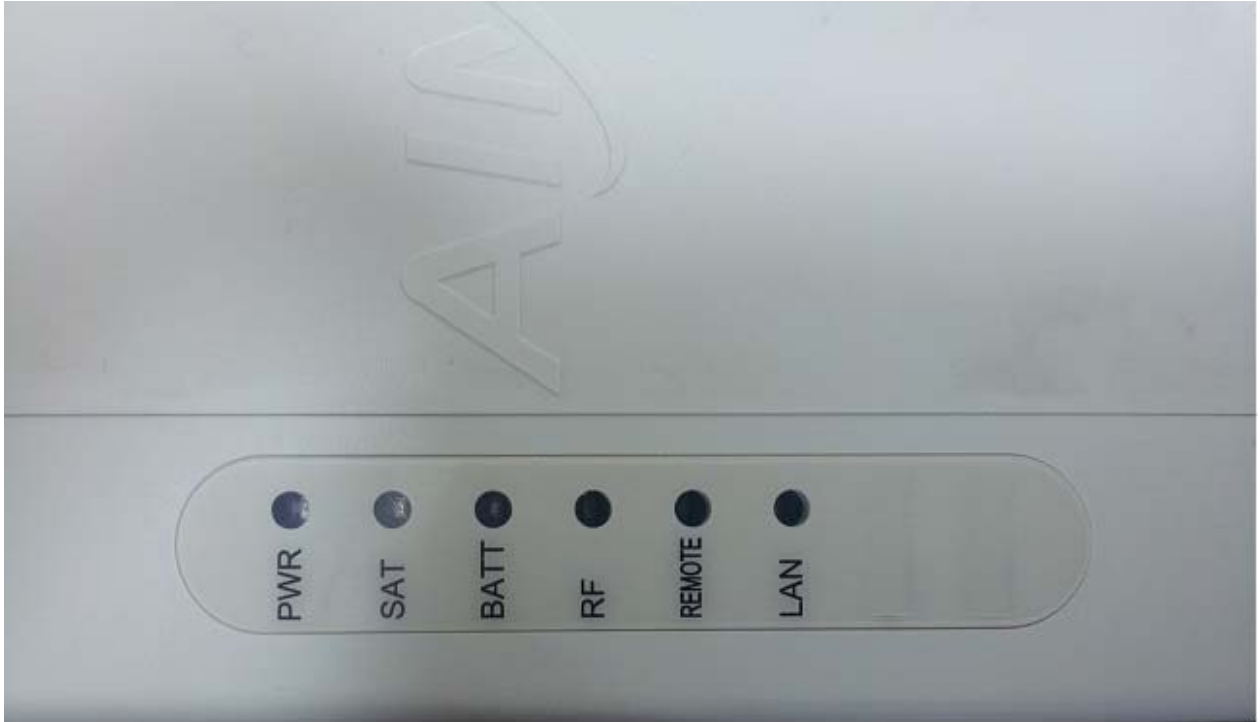
- Concentrator
- Serial Cable
- GSM/GPRS Antenna
- ZigBee Antenna



GSM/GPRS Antenna	
ZigBee Antenna	
Serial Cable	
Screw	

4. External Interface & Status Display

4.1 Front LED



Item	LED	Explanation
Power	PWR	GREEN On – Power is being supplied
SATUS	SAT	GREEN On – Operating status
Battery	BATT	GREEN On – Battery low
		GREEN Off – Battery normal
RF	RF	GREEN On/Off – Data Communication Over ZigBee Network
REMOTE	REMOTE	GREEN On/Off – Data Communication Over GSM/GPRS Network
LAN	LAN	GREEN On/Off – Data Communication Over GSM/GPRS Network

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4.2 Top Interface

Is so that can connect CARRIER(GSM/GPRS) and RF(ZigBee) Antenna by SMA Connector Type with picture below.



Name	Explanation
RF	ZigBee Antenna Connector
CARRIER	GSM/GPRS Antenna Connector

4.3 Bottom Interface

There are Connector and NDC-I331 Reset Switch that can connect AC Power Cable to Bottom Interface and there are LAN Port and Console Port so that can do Interface with External Device.



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Name	Explanation
AC 100 ~ 240V	AC Power Cable Connector
RESET	Reset Switch
LAN(2)	Ethernet Port (10/100/1000Mbps)
Console	Serial Port Console

4.4 Console Cable


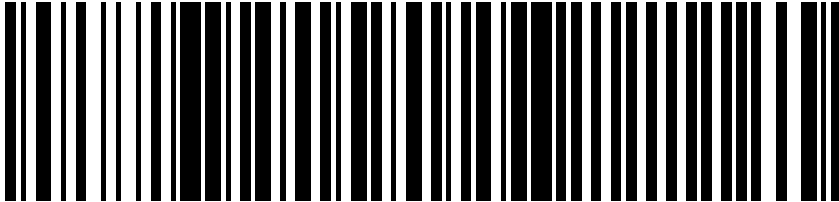
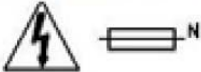


Number	Name	Explanation
2	TXD	Transmitted Data Signal
3	RXD	Received Data Signal
5	GND	Signal Ground

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5. ETC

5.1 Label

<p>1. Model: NDC-I331 2. Manufactured: 2015. 01 3. Rated Input: AC100-240V~, 50/60Hz, 0.5A 4. FCC ID: 2AD28NDCI331 5. Contains 2G Module FCC ID : RIGE910Q3 NURI Telecom Co., Ltd.</p>	 <p>Made in Korea</p>
<p>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 Interface received, including interference that may cause undesired operation</p>	
 <p>0 0 0 B 1 2 0 9 F 1 5 E</p>	<p>CAUTION DOUBLE POLE/NEUTRAL</p> 
<p>40 mm</p>	
<p>25 mm</p>	



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 Interface received, including interference that may cause undesired operation

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for PERMANENTLY CONNECTED EQUIPMENT, a readily accessible disconnect device shall be incorporated external to the equipment

Rated Voltage: 220V~ , Rated Current: 15A

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

5.2 Antenna Installation



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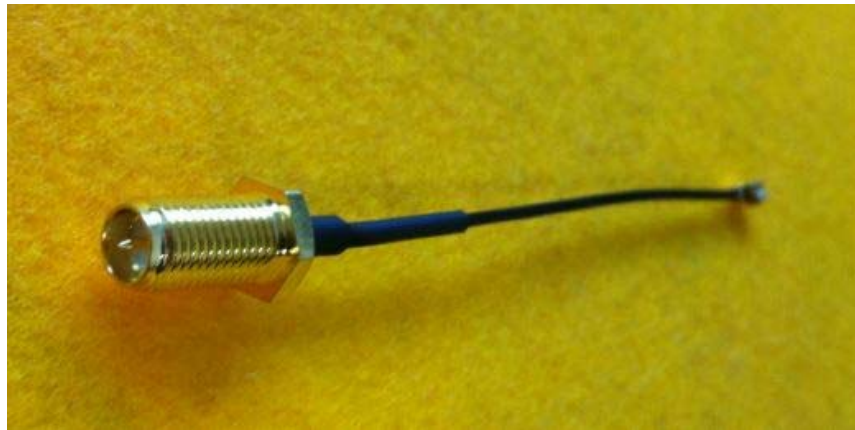
Use the reverse pole Type.



ZigBee



GSM



Note: 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. 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.

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

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