NAUTIZ X21

Manual

handheld

Revision History

Version	Date	Changes
1.0	2024/10/14	Initial Release

CONTENT

ABOUT THIS MANUAL

Thank you for purchasing the Handheld product. This manual explains how to install, operate and maintain our product. No part of this publication may be reproduced or used in any form, or by any electrical or mechanical means, such as photocopying, recording, or information storage and retrieval systems, without permission in writing from the manufacturer. The material in this manual is subject to change without notice.

REGULATORY COMPLIANCE STATEMENTS

FCC Warning Statement

This device 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 with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with 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.

1. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. To maintain compliance with FCC RF exposure requirements, avoid direct contact to the transmitting antenna during transmitting.
3. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

FCC Label Statement

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

RF Radiation Exposure Statement

For body contact during operation, this device has been tested and meets FCC RF exposure guidelines when used with an accessory that contains no metal and that positions the handset a minimum of 1.0 cm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

IC Statements

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radioexempts 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 fonctionnement.
Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio

interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

After the laboratory measurement, the max SAR value is 1.49mW/g which satisfies the RF exposure requirement.

(i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
(ii) the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and
(iii) the maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

(i)Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.
(ii) le gain d'antenne maximal autorisé pour les appareils dans les bandes 5250-5350 MHz et 5470-5725 MHz doivent respecter le pire limiter; et
(iii) le gain d'antenne maximal autorisé pour les appareils dans la bande 5725-5825 MHz doivent respecter le pire limites spécifiées pour le point-à-point et l'exploitation non point à point, le cas échéant.

Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

Devices shall not be used for control of or communications with unmanned aircraft systems.

RF Radiation Exposure Statement

For body contact during operation, this device has been tested and meets IC RF exposure guidelines when used with an accessory that contains no metal and that positions the handset a minimum of 1.0 cm from the body.
Use of other accessories may not ensure compliance with IC RF exposure guidelines.

European Conformity Statement

Handheld Group AB here with declares that the product is in compliance with the essential requirements and all other provisions of the RED 2014/53/EU directive.
The declaration of conformity is available for download at :
https://www.handheldgroup.com/

CE RF Exposure Compliance

For body-worn operation, this device has been tested and meets the ICNIRP guidelines and the European Standard EN 62209-2, for use with dedicated accessories, SAR is measured with this device at a separation of 0.5 cm to the body, while transmitting at the highest certified output power level in all frequency bands of this device. Use of other accessories which contain metals may not ensure compliance with ICNIRP exposure guidelines.

CE Mark

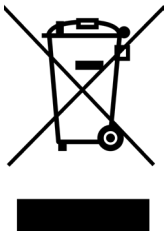
RoHS Statement

This device conforms to RoHS (Restriction Of Hazardous Substances) European Union regulations that set maximum concentration limits on hazardous materials used in electrical and electronic equipment.

Waste electrical and electronic equipment (WEEE)

Handheld has set up a policy and process to meet the 2012/19/EU concerning electronic waste disposal.

For more detailed information of the electronic waste disposal of the products you have purchased from Handheld directly or via resellers, you shall either contact your local supplier or visit us at :
https://www.handheldgroup.com



LASER INFORMATION

The Handheld product is certified in the U.S. to conform to the requirements of DHHS/CDRH 21CFR Subchapter J and to the requirements of IEC 60825-1. Class II and Class 2 products are not considered to be hazardous. The Handheld product contains internally a Visible Laser Diode (VLD) whose emissions do not exceed the maximum limits as set forth in the above regulations. The scanner is designed so that there is no human access to harmful laser light during normal operation, user maintenance or prescribed service operations.
The laser safety warning label required by the DHHS/IEC for the Handheld product's optional laser scanner module is located on the memory compartment cover, on the back of the unit.

* Laser information only applies to the products with laser components.

CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light. Use of optical instruments with the scanner, including binoculars, microscopes, and magnifying glasses, with will increase eye damage. This does not include eyeglasses worn by the user.

LED INFORMATION

The Handheld product contains LED indicator(s) or LED ring whose luminance is not harmful to human eyes during normal operation, user maintenance or prescribed service operations.

*LED information only applies to the products with LED components.

BATTERY NOTICE

1. To guarantee optimal performance, it is recommended that rechargeable batteries be replaced every year, or after 500 charging cycles are completed. It is normal for the battery to balloon or expand after one year or 500 cycles. Although it does not cause damage, it cannot be used again and must be disposed of according to the location's safe battery disposal procedures.

2. If a battery performance decreases more than 20%, the battery is at the end of its life cycle. Stop use and ensure the battery is disposed of properly.

3. The length of time that a battery lasts depends on the battery type and how the device is used. Conserve the battery life by doing the following:
   - Avoid fully uncharging the battery because this places additional strain on it. Several partial uncharges with frequent charges are better than a fully uncharged battery. Charging a partially charged battery does not cause harm to the unit.
   - Keep the battery cool. Avoid hot vehicles. For prolonged storage, keep the battery at a 40% charge level.
   - Do not leave the battery uncharged and unused for an extended period of time, the battery will wear out and the longevity of the battery will be at least half of one with frequent charges.

4. Protect battery life by not over or under charging the battery.

5. Please do not leave battery unused for long time without charging it. Despite these safety precautions, the battery pack may begin to change shape. If so, stop using it immediately. Please check to see if you are using a proper power adapter to charge the battery or contact your service provider for service.

6. If you cannot charge the battery after it has been idle for an extended period of time and it begins to heat up, please do not try to charge it. It may not be functional anymore.

7. Please only use the original battery from Handheld. Using a third party battery can damage our products. Please note that when such damage occurs, it is not covered by Handheld's warranty policy.

⚠ **CAUTION -**

RISK OF EXPLOSION IF BATTERY IS REPLACED INCORRECTLY.

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Battery charge notice

It is important to consider temperature when the battery pack is charging. Charging is most efficient at normal room temperature or in a slightly cooler environment. It is essential that batteries are charged within the stated range of 0°C to 40°C. Charging batteries outside of the specified range could damage the batteries and shorten their life cycle.

⚠ **CAUTION - Do not charge batteries at a temperature lower than 0°C. This will make the batteries unstable and dangerous. Please use a battery temperature detecting device for a charger to ensure a safe charging temperature range.**

⚠ **CAUTION - To ensure the unit working properly, please keep all connectors away from the contaminants staying inside of them such as dust, grease, mud, and water. The negligence may cause the unit with no communication, short circuited, overheated and so on.**

⚠ **CAUTION - If the connector is damaged, please ensure the connector is being fully repaired before use the unit to avoid causing short circuited.**

Storage and safety notice

Although charged batteries may be left unused for several months, their capacity may be depleted due to build up of internal resistance. If this happens, they will require recharging prior to use. Batteries may be stored at temperatures between -20°C to 60°C, however they may deplete more rapidly at higher temperatures. It is recommended to store batteries at room temperature.

* The message above only applies to the usage of the removable batteries. For the products with non-removable batteries / without batteries, please refer to the specification of each product.

Product Operation and Storage Notice

The Handheld product has applicable operation and storage temperature conditions. Please follow the limitation of suggested temperature conditions to avoid failure, damage or malfunction.

*For applicable temperature conditions, please refer to the specification of each product.

ADAPTER NOTICE

1. Please do not leave the power adapter in the socket when it is not connected to your Handheld product for charging.

2. Please remove the power adapter when the battery is fully recharged.

3. Please only use the recommended adapter to charge your Handheld product. Using the wrong power adapter can damage your Handheld product.

* The message above only applies to the product connected to the adapter. For the products without using the adapters, please refer to the specification of each product.

HEARING DAMAGE WARNING

To prevent possible hearing damage, do not listen at high volume levels for long periods.

Figure 1 – Warning label (IEC 60417-6044)

INTRODUCTION

What´s in the box

Please make sure the following contents are in the Nautiz X21 gift box.
If something is missing or damaged, please contact your Handheld representative.

- Nautiz X21 Rugged Handheld Computer
- Battery
- Hand Strap
- USB Type-C Cable
- Quick Start Guide

Optional accessories, not included in the box

- Screen protector
- Extended battery
- Desktop cradle
- Vehicle dock
- Five-slot charging station

Product Detail

Nautiz X21 Product View.

Specifications

System feature	
CPU	Qualcomm Snapdragon™ 6490 Processor, 64bits, Octa Cores up to 2.7 GHz
Memory	6 GB RAM 64 GB UFS Flash
OS	Android™14
GMS certified	GMS certified
Languages support	Multiple languages
Display	
Screen Size	6.3" Color LCD 2160 X 1080 (FHD+) High Resolution Display
Touchpanel	Gorilla Glass with Multi-Touch Capacitive Touch Panel, support stylus, glove, wet-finger Compatibility High sunlight visibility - LCD backlight up to 500nits
Keypad	Programmable key, Volume up/down key, Left/right scan key, Power key
Camera	5 MP Front camera 16 MP Rear Camera with LED flash and auto-focus function,
Indicator Type	LED, Vibrator
Symbologies	Built-in 2D imager engine with red laser aimer, with 1 Mpx & global shutter function Optional Middle range engine support read range up to 10 meters Support all 1D & 2D major barcodes
RFID	
HF	Support HF/NFC Frequency 13.56Mhz Support: ISO14443A/B, ISO15693, Mifare, Felica(ISO/IEC18092)
Main Battery	Hot Swappable 5100mAh Li-Polymer battery / battery with cover in one piece
Extended battery	7840mAh / battery with cover in one piece (optional)
Hot Swap	Yes
Regulatory Approvals	CE, FCC/IC, RCM, RoHS 2.0
Communication	
BT®	BT® 5.2 , BLE 5, Class 1
WLAN	WLAN 6E+DBS, 2.4GHz & 5GHz & 6GHz IEEE 802.11a/b/g/n/ac/d/h/i/k/r/v/ac/ax (2x2 MU-MIMO) Security WPA3, WPA2, WPA & WEP
WWAN	5G Sub 6GHz:N1/N2/N3/N5/N28/N41/N71/N77/N78/N79 (4x4 MIMO) 4G LTE(FDD) – Bands 1, 2, 3, 4, 5, 7, 8, 17, 20, 28, 71 (TDD) – Bands 38, 39, 40, 41 3G UMTS/HSPA+ – Bands 1, 2, 5, 8 2G GSM/GPRS/EDGE (850/900/1800/1900 MHz)

GPS	GPS/GLONASS/Gallileo/Beidou/SBAS, support L1+L5
Sensors	Gyroscope, G-sensor, E-compass, Light & Proximity Sensor
I/O Interfaces	
USB	USB 3.1 type C, support fast charging, OTG
POGO PIN	Bottom pogo pin for cradles (spare) rear pogo pin for gun grips (spare)
SIM Slot	Nano SIM Slot x 2
Expansion slot	Micro SD x 1, up to 256 GB
Audio	SmartPA Speaker support 100 dB at 10cm Dual-Microphone support noise cancellation
Enclosure	
Dimensions	167mm x 75.5mm x 17mm (H x W x D)
Weight	270 g
Environmental	
Operating temperature	-4°F to 131°F (-20°C to 55°C)
Storage temperature	-40°F to 158°F (-40°C to 70°C), without battery
Relative Humidity	5% ~ 95% (Non-Condensing)
Drop Specification	1.8 meter with bumper 1.5 meter without bumper
Sealing	IP67
Vibration/Tumble test	Tumble 600 times (1.6 ft./0.5 m)
Software	
MDM Software	MaxGo Manager, SOTI

Android is a trademark of Google LLC.

Note: The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range.

	AT	BE	BG	HR	CY	CZ	DK
	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL
	PT	RO	SK	SI	ES	SE	UK
	IS	LI	NO	CH	TR		

Radio type / Description		**Maximum Output Power**
GSM	GSM900	34dBm
	DCS 1800	31.5dBm
UMTS	FDD 1	24.5dBm
	FDD 8	24.5dBm
LTE	FDD 1	24dBm
	FDD 3	24dBm
	FDD 7	24dBm
	FDD 8	24.5dBm
	FDD 20	24.5dBm
	FDD 28	24.5dBm
	TDD 38	24dBm
	TDD 40	24dBm
5G NR	NR n1	24dBm
	NR n3	24dBm
	NR n28	24.5dBm
	NR n41	26dBm
	NR n77	26dBm
	NR n78	26dBm
WLAN 2.4GHz	IEEE 802.11b	18dBm
	IEEE 802.11g	16dBm
	IEEE 802.11n	18dBm
	IEEE 802.11ax	17dBm
WLAN 5GHz	IEEE 802.11a	17dBm
	IEEE 802.11n	18dBm
	IEEE 802.11ac	16dBm
	IEEE 802.11ax	16dBm
WLAN 6GHz	IEEE 802.11ax	15dBm
Bluetooth	Bluetooth	8.5dBm
RFID	NFC	<25dBuA/m

SIM/MICRO SD CARD

1. Pull out the nanoSIM / microSD card holder.

2. The card holder supports either two nanoSIM cards or one nanoSIM card and one microSD card.

3. Align the card holder with the slot and push it in completely. Ensure the cards remain flat as you slide the card holder back into place.

Insert Battery

1. Insert the battery in the battery compartment, as shown in the image below.

2. Press and hold both plastic clips at the bottom, then push the battery towards the front.

3. Press down the battery to ensure it is securely locked in place.

Remove Battery

1. Press and hold both of the plastic clips at the bottom of the battery, as shown in the image below.

2. Push the battery towards the front and lift to remove it.

WARNING - There is a risk of fire and burns if the battery is handled improperly.
DO NOT disassemble, crush, puncture, short external contacts, or dispose of the battery pack in fire or water.DO NOT attempt to open or service the battery. Dispose of used batteries according to local recycling guidelines in your area.

⚠ **CAUTION - To ensure the unit is working properly, please keep all connectors away from the contaminants such as dust, grease, mud, and water.**

Negligence may cause the unit to lose communication, short circuit, or overheat. If the connector is damaged, please ensure the connector is fully repaired before using the unit to avoid short-circuiting.

Charging the Battery

Before using your Nautiz X21 for the first time, you need to charge it.

Fully charged Nautiz X21 can take up to 4 hours. To charge your Nautiz X21, please use the USB charging cable or the cradle. Connect the USB type-C cable to the USB port on Nautiz X21 and the other end of the USB cable connect to AC power Adapter into the electrical outlet on the USB plug. The charging LED indicator on Nautiz X21 is turning red in the charging state.

Turning on the Nautiz X21 for the first time

It is recommended to fully charge Nautiz X21 before first use. You can now start up your device to set up the languages, WLAN setting, and date and time.

Turn ON your device by pressing the power button on the side of the Nautiz X21.

LED Indicators

LED	Description
Red	Battery charging
Green	Battery fully charged Barcode scanned successfully
Blue	Message

If the scanner app is running, the LED is controlled by the scanner app.
No LED will be lit when the battery is out even if external power source is connected.

Rear connector Pinout

Pin #	Pin name	Notes
1	UART_TX	TTL 3V3 Serial Output
2	UART_RX	TTL 3V3 Serial Input
3	Trigger	Input (pull to GND to trigger scanner)
4	UART_EN	SDK controlled 3.3V/0.33mA output
5	GND	Ground
6	GND	Ground
7	GUN_ADC	Reserved, do not connect
8	GUN_VBUS	Reserved, do not connect
9	VPH_PWR	3.0-4.4V BAT power output
10	VPH_PWR	3.0-4.4V BAT power output

The device path for the UART serial connection is /dev/ttyHS1.

UART_EN can be controlled by writing “0” (off) or “1” (on) to "/sys/class/extbd_ctrl/extbd_pwren".

WARRANTY POLICY

The following items covered under the Handheld Limited Warranty are free from defects during normal use:
The standard warranty period is 12 months.
Warranty becomes void if equipment is modified, improperly installed or used, damaged by accident or neglect, or if any parts are improperly installed or replaced by the user.

HANDHELD SUPPORT

Our support team is available to answer your questions and assist with any technical issues.

Visit our website for the latest information and documentation on all our products
www.handheldgroup.com/

For product support and our service and support departments please go to
www.handheldgroup.com/knowledgebase