IMT-BT

Medical Mobile Tablet

User's Manual

(Windows)

Manual Rev.: 1.00

Revision Date: March 31, 2017

Part No: 50-1Z209-1000

Leading **EDGE COMPUTING**

Revision History

Revision	Release Date	Description of Change(s)
1.00	31/03/2017	Initial release

Preface

Disclaimer

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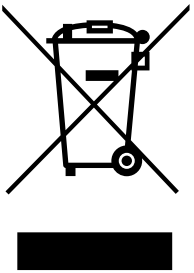
In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

Environmental Responsibility



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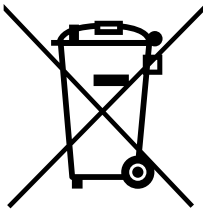
Battery Labels



Trademarks

Product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective companies.

Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.

NOTE: Additional information, aids, and tips that help users perform tasks.

CAUTION: Information to prevent ***minor*** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.

WARNING: Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

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1 Introduction

1.1 Overview

The IMT-BT medical mobile tablet is designed for customers in the retail and field service markets requiring a semi-rugged mobile tablet running Windows Embedded 8.1 to act as a durable terminal with high performance computing and versatile features. The IMT-BT features a 1.58 GHz dual-core Intel® Celeron® Processor N2807 system-on-chip, NFC and RFID reader functions, drop protection, IP65 water and dust resistance and wide operating temperature range.

1.2 Features

- Intel® Celeron® Processor N2807 dual-core processor system-on-chip
- Windows Embedded 8.1 operating system
- 10.1” sunlight readable display, capacitive touchscreen
- Wireless Connectivity:
  - WLAN: IEEE 802.11 a/b/g/n/ac
  - WPAN: Bluetooth 4.0
  - WWAN: 3.5G HSPA+, 4G LTE (optional)
- GPS, E-compass, G-sensor
- Data Capture: HF 13.56MHz NFC RFID, SAM encryption supported
- IP65 rating
- 1.2m drop resistance (1.5m with optional protective rubber housing)

1.3 Specifications

Physical	• Dimensions: 291 x 198 x 23 mm (L x W x T) • Weight: 1150g
Processor	• Intel® Celeron® Processor N2807 (1M Cache, up to 2.16 GHz)
Memory & Storage	• 4 GB DDR3 RAM • 64 GB eMMC
Display	• 10.1” sunlight readable display, 1280x800 resolution • Projected capacitive touchscreen • 700 nits brightness • 2-points touch • Corning Gorilla glass (7H hardness) • HDMI port (Type A)
Buttons	• 1x power button • 4x programmable function buttons
Expansion Slots	• 1x SIM slot • 1x SD slot (SDHC up to 64GB, Class 2 to 10) • 1x USB 3.0 (Type-A)
Wireless LAN	IEEE 802.11 a/b/g/n/ac (combo Mini PCIe half-size card • WEP, WPA/WPA2, WAPI • 802.11a: up to 54 Mbps; 802.11b: up to 11 Mbps; 802.11g: up to 54 Mbps; 802.11n: up to 65 Mbps • Distance: 50 meters indoors, 150 meters outdoors
Wireless PAN	Bluetooth 4.0 (combo Mini PCIe half-size card)
Wireless WAN	3.5G HSPA+, 4G LTE (Mini PCIe half-size card, optional) • LTE: 150Mbps downlink, 50Mbps uplink • WCDMA: HSDPA, HSUPA, HSPA+ • GSM/GPRS/EDGE: GSM, GPRS/EDGE Class 12
GPS	• GPS Module: uBlox AMY-6M • Accuracy: 20 Meters • Hot start: 1 second • Warm start: 40 seconds • Cold start: 45 seconds • Tracking & Acquisition: -160 dB • Internal antenna
RFID	• HF Reader 13.56 MHz • Tag support: ISO15693, ISO14443A/B, NFC 18000-3 • SAM card support

Table 1-1: IMT-BT (Windows Embedded) Specifications

Built-in Sensors	• G sensor: 3-axis, 2g, at least 8-bits accuracy • E-Compass: 3-axis, at least 8-bits accuracy • Gyroscope: 12-bits accuracy • Illuminance sensor: 0 ~ 100,000 lux
Status LEDs	• Power, Wi-Fi, Charging
Camera	• Back: 5 megapixel color camera with flash, autofocus • Top: 2 megapixel color camera
Audio	• Speaker, 100dB 1kHz @10 cm, 8 ohms • Stereo headphone jack (3.5mm) • Bluetooth headset support • Built-in microphone
Battery	• Li-ion 6300 mAh, 7.4V • Full charge time < 4 hrs
Power Adapter	• Input: 100-240 V AC, 47-63 Hz • Output: 12V DC, 2.5A max.
OS	• Windows Embedded 8.1, Windows 10 IOT CBB Value
Environmental	• Operating Temperature: 0°C to 40°C • Charging Temperature: 0°C to 40°C • Storage Temperature: -20°C to 60°C • Humidity: 10% to 90% non-condensing • Drop Resistance: 1.2m (1.5m with optional protective rubber housing) • Ingress Rating: IP65
Certifications	• CB, CE, FCC • EN 60601-1 • RoHS

Table 1-1: IMT-BT (Windows Embedded) Specifications

1.4 Package Contents

Please check that your package contains the items below. If you discover damaged or missing items, please contact your vendor.

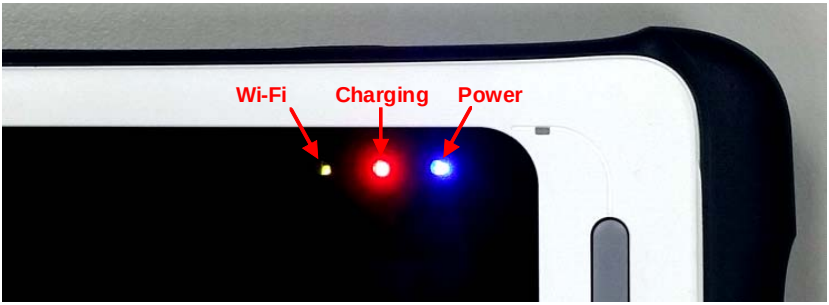
- IMT-BT medical mobile tablet
- AC power adapter x1
- Hand strap x1

DO NOT install or apply power to equipment that is damaged or if there is missing/incomplete equipment. Retain the shipping carton and packing materials for inspection. Please contact your ADLINK dealer/vendor immediately for assistance. Obtain authorization from your dealer before returning any product to ADLINK.

1.5 Product Layout

Figure 1-1: IMT-BT Layout

Status LEDs



LED	Color	Status
Wi-Fi	Green	Connected (flashing when active)
Charging (when AC adapter is connected)	Red (solid)	Charging
	Off	Fully charged
	Red (flashing)	Abnormal charging condition
Power	Blue	System ON
	Yellow	Standby (S3)

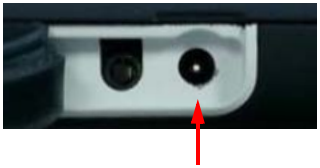
Table 1-2: IMT-BT Status LED Descriptions

2 Getting Started

2.1 Charging the Battery

Be sure to fully charge the battery before using your device for the first time.

1. Locate the DC input socket on the left side of the tablet and open the cover.



2. Insert the DC jack end of the AC adapter into the socket and the AC plug into the wall socket.
3. The power status LED glows red when charging. If charging for the first time, do not disconnect your device from AC power until the battery is fully charged, indicated by the power status LED glowing green. This may take up to 4 hours.

4. Close the cover when charging is completed.

NOTE: A blinking power status LED indicates an abnormal charging condition. Check that the AC adapter is properly inserted into the DC input socket and that the device is not charging in high temperature conditions, resulting in an overheated battery.

CAUTION:

For optimum performance of your battery:

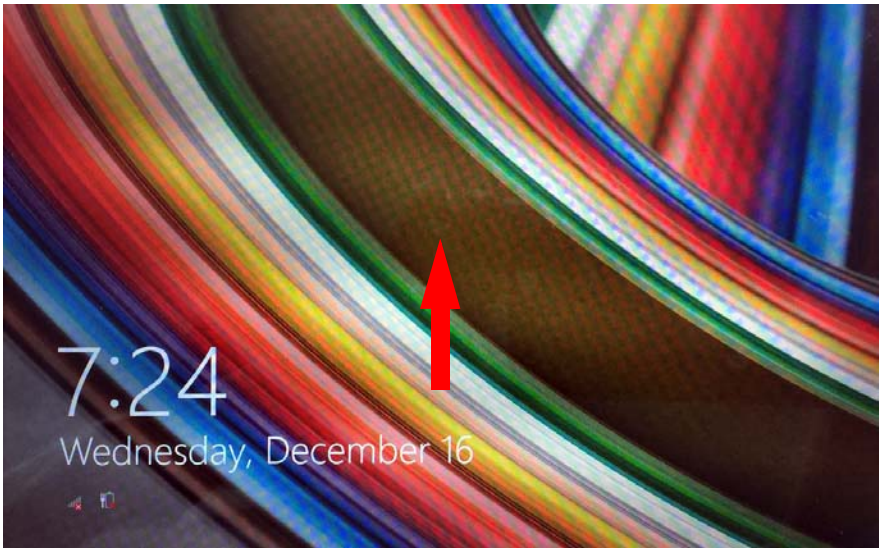
- Only use the AC adapter provided
- Do not charge the battery when the temperature is high (e.g. in direct sunlight).
- Do not store the device in high temperature environments
- Only charge the battery when its temperature is between 0°C and 40°C
- If you are not using the device for an extended period of time, be sure to fully charge the battery at least once every two weeks. Over discharge of the battery can affect its performance.

2.2 Turning the Tablet On/Off

Turning On

Press and hold the power switch for 2-3 seconds until the blue power status LED indicator turns on.

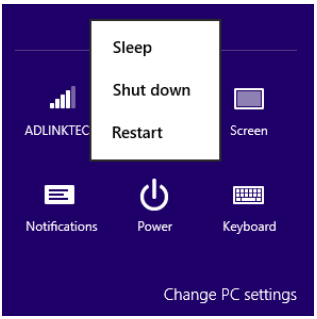
Swipe upwards on the lock screen to go to the login screen.



Turning Off

1. Open the **Charms Bar** by swiping left from the right edge of the screen.

2. Tap on **Settings** > **Power** > then tap **Shut down.**



NOTE: To perform a forced shut down, hold the power button down for 5-6 seconds.

Standby

To manually put the tablet into standby mode (S3), briefly press the power button. The display will turn off and the power status LED will change to yellow after a few seconds.

To wake the tablet from Standby, tap the touchscreen or briefly press the power button.

3 Using the Tablet

This chapter describes how to perform basic operations with the tablet.

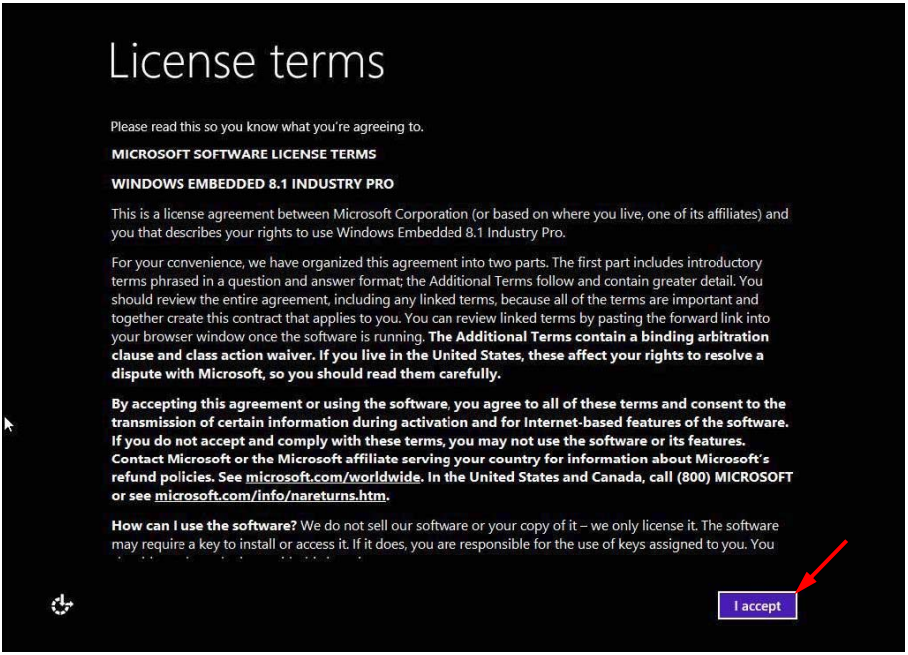
CAUTION:

The device can get uncomfortably warm when used in warm environments. Take care to protect yourself (e.g. by wearing gloves). Prolonged body contact can cause discomfort and potentially a burn.

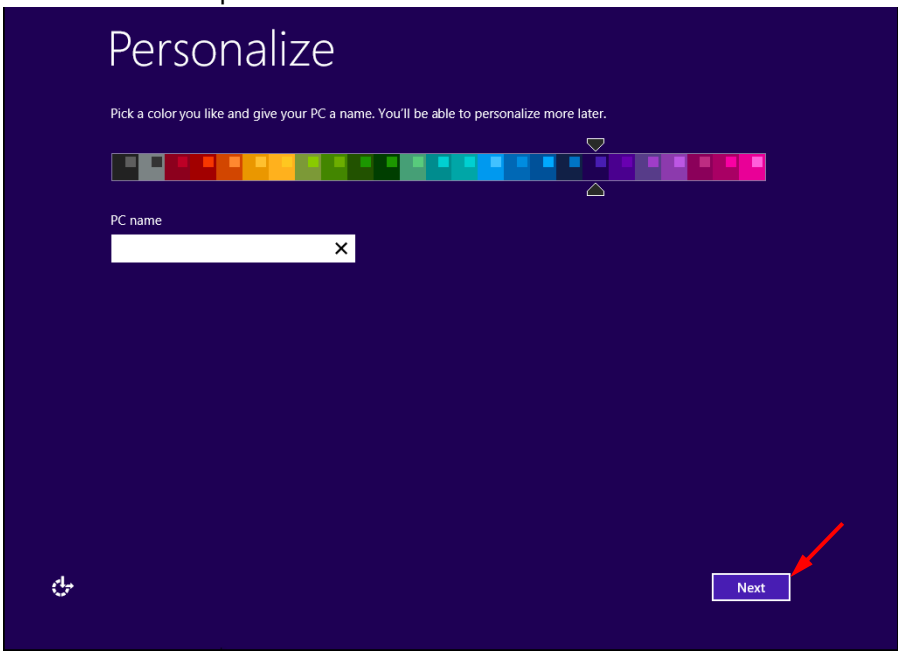
3.1 Initial Setup

After turning on your device for the first time, follow the steps below to complete the initial setup.

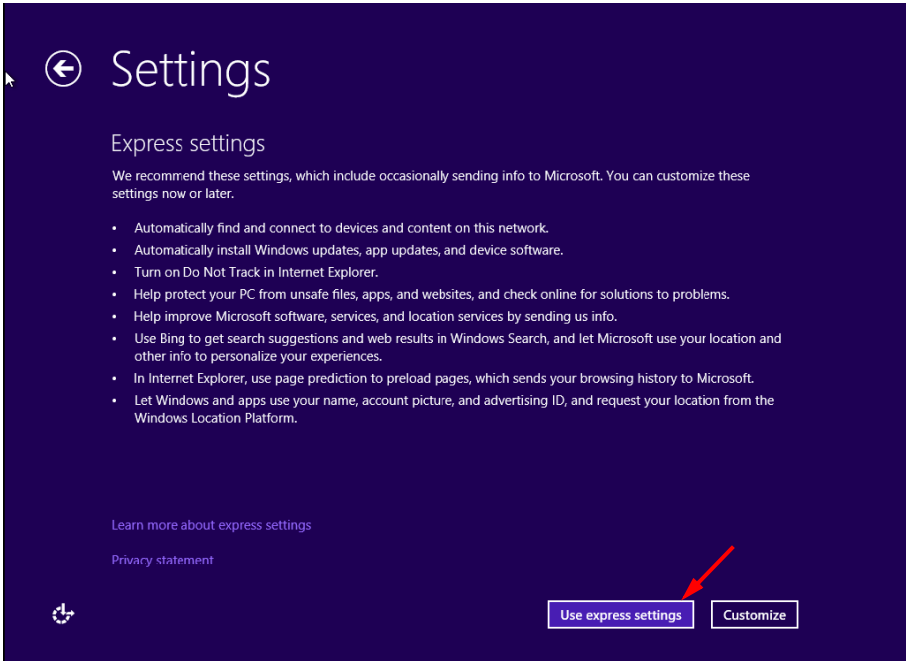
1. Tap **I accept** to accept Windows licensing terms.



2. On the **Personalize** screen, choose a background color. This can be changed later in Settings.
3. In the **PC name** field, type a name for your tablet, and then tap **Next**.

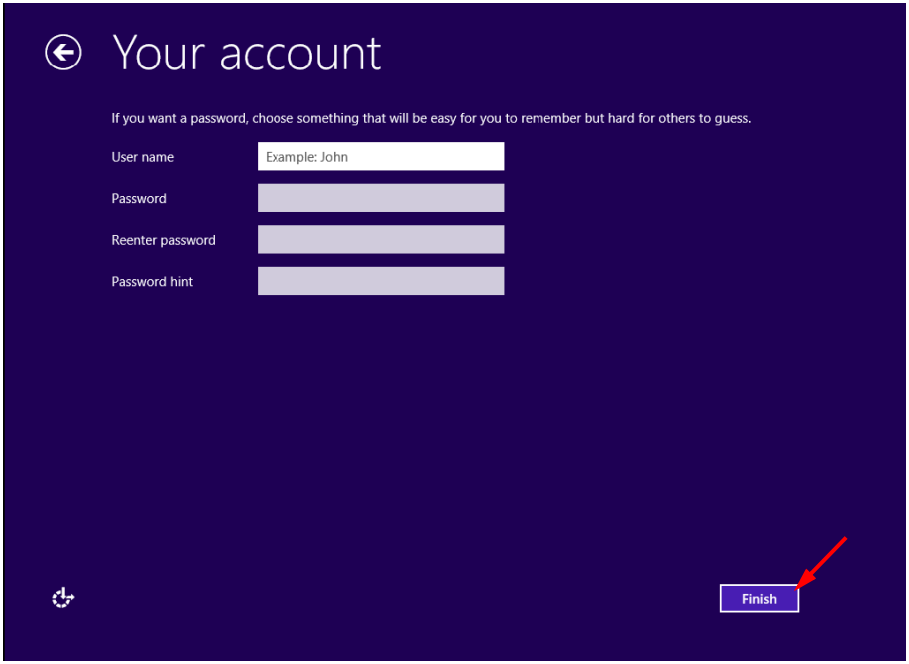


4. On the **Settings** page screen, tap **Use express settings** for the quick setup.

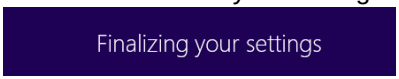


5. Wait while Windows tries to check your Internet connection.

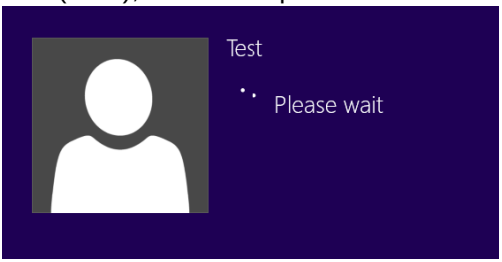
6. On the **Your account** screen, type your user name and password (if desired) to create a local account, then tap Finish.



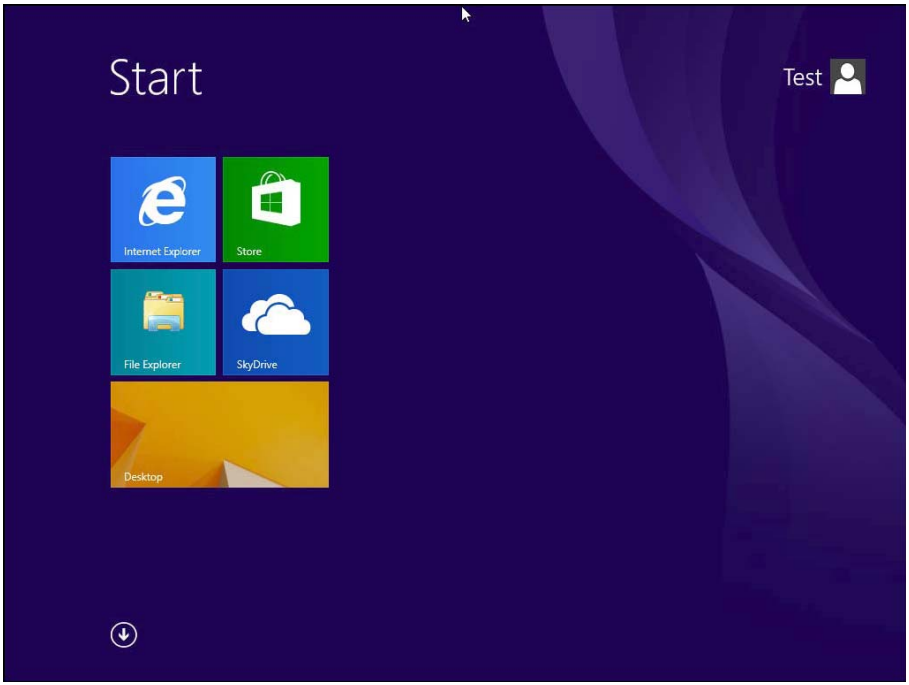
7. Wait while Windows finalizes your settings.



8. At the Windows Sign-in screen, enter the user name and password (if set), and then tap Enter



9. After Windows finishes logging in, you will be taken to the Start screen.



3.2 Navigating the Touchscreen

Be careful not to damage the touchscreen with sharp objects. Use your finger or a stylus specifically intended for touchscreens.

The following actions can be performed with the touchscreen.

- **Tap:** touch the screen once
- **Press and hold:** press and hold on an item to see a list of options available (similar to Windows right-click)
- **Pinch:** touch the screen with two fingers and pinch them together to zoom in, spread them apart to zoom out
- **Drag:** press and hold an item, then move across the screen without lifting your finger (stylus) to the target location
- **Swipe:** move your finger (stylus) across the screen without pausing when you first touch it (e.g. scrolling up and down)
- **Swipe from the edge:** swipe your finger from outside the edge onto the screen without lifting it
  - Swipe from the left edge: shows recently opened apps; keep swiping to switch between apps.
  - Swipe from the right edge: opens or closes the Charms Bar (Search, Share, Start, Devices, Settings)
- **Rotate:** Put two or more fingers on an item and turn your hand to rotate it. Not all items can be rotated.

Landscape and Portrait View

The tablet supports landscape and portrait view, and will automatically adjust the display orientation depending on how it is held our mounted.

3.3 Using Windows Embedded 8.1

For detailed information on what is new and how to operate Windows Embedded 8.1. For more detailed information, please refer to **http://windows.microsoft.com/en-us/windows/support**.

After powering on the tablet, swiping upwards on the lock screen to go to the login screen. After login you will see the **Start** screen.

Start Screen

The Start screen is the starting place for everything you can do in the Windows 8.1 operating system, providing access to apps, the Internet, device functions and other important information.

Tiles

The Start screen is organized into tiles. Tap a tile to access it's function (e.g. Mail or Calendar). The **Desktop** tile at the lower left corner takes you to the traditional Windows desktop interface.

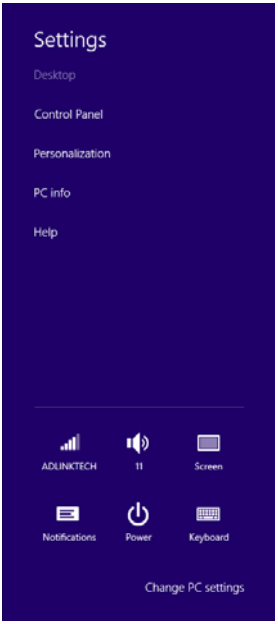
Charms Bar

The **Charms Bar** allows quick access to commonly used functions. Swipe from the right edge to open it.

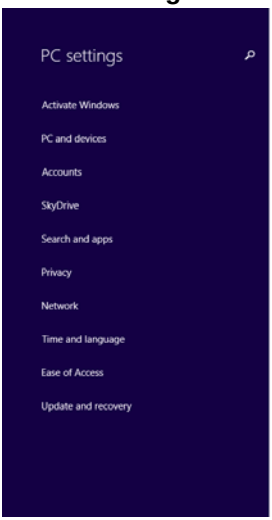
- **Search:** Allows you to search your tablet (apps, settings and files), the web, or within an app.
- **Share:** Allows you to share items such as links photos.
- **Start:** Takes you to the Start screen or, if already on the Start screen, returns you to previously used app.
- **Devices:** Allows you to manage your hardware.
- **Settings:** This charm allows you to access your tablet's settings, such as wireless connectivity, volume, brightness and the settings menu.

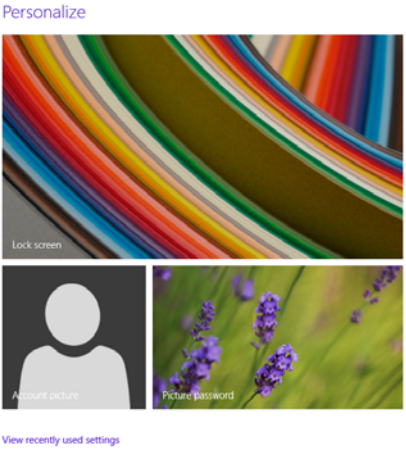
Settings

Tap **Settings** in the Charm Bar to access the Settings menu. Tap **Change PC Settings** to access more detailed menus such as **PC and Devices** and **Privacy**..



PC Settings





Desktop

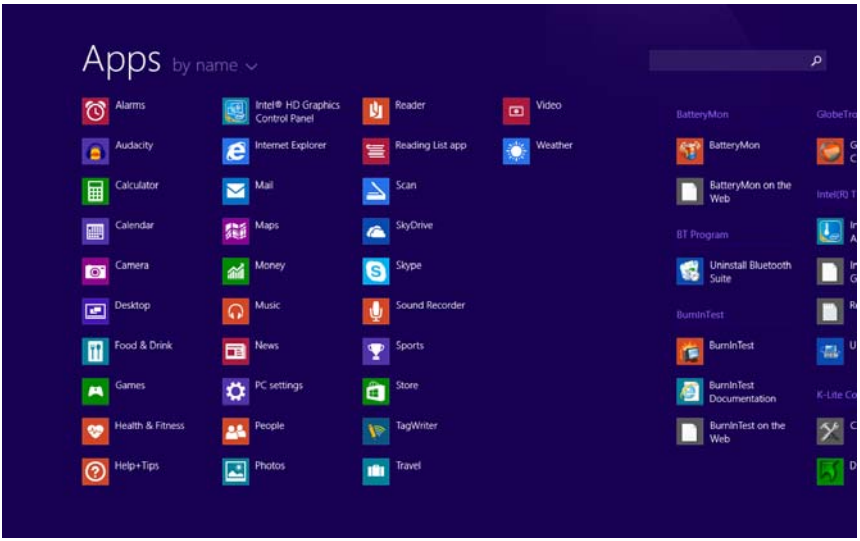
The traditional Windows Desktop provides a familiar interface for Windows users. Use the Charms Bar to return to the Start screen.

Sign-in Options

Windows offers a number of sign-in options, including password, PIN and picture password authentication to prevent unauthorized access. To set your sign-in option, open the **Charms Bar** and tap **Settings > PC settings > Accounts > Sign-in options**.

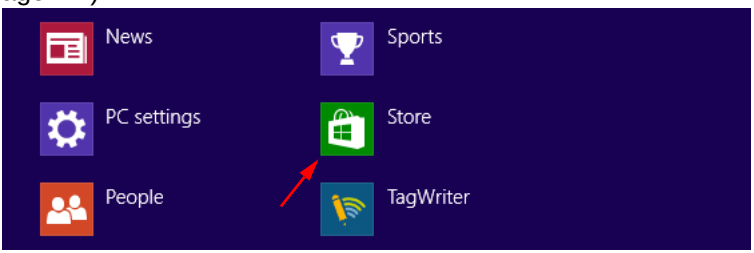
3.4 Apps

From the Start screen, swipe upwards to access the Apps screen. Swipe left to view more apps or use the search bar at the top right.



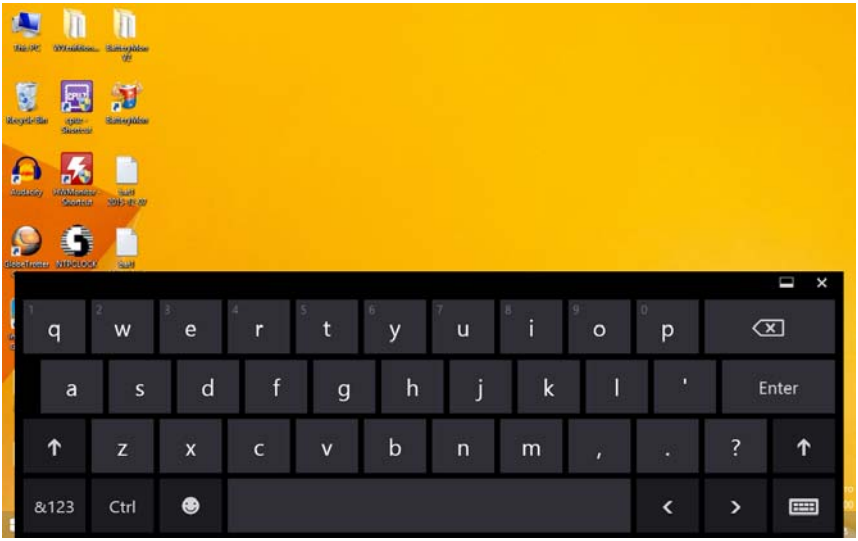
Windows Store

To access more apps for your tablet, tap on the Windows Store tile. Make sure your tablet has a Wi-Fi connection (see “Wi-Fi” on page 24.).



3.5 Entering Text

You can enter text, numbers, and symbols using the onscreen keyboard. The keyboard will appear when you touch the input field where you want to enter text. To open the keyboard manually from the desktop, tap the keyboard icon in the system tray.



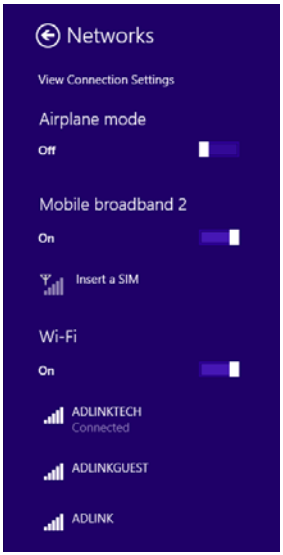
To enter text, touch the keys on the keyboard to type. To enter numbers or symbols, touch the Symbols key (lower left corner) to switch to the numbers and symbols keyboard. Touch the Settings key (lower right corner) to split the keyboard or enter handwriting mode.

3.6 Programmable Function Buttons

The function buttons at the top right of the tablet can be programmed with customized functions. For information on programming the function buttons, please contact your ADLINK representative..

4 Wireless Connections

The IMT-BT supports wireless connectivity via Wi-Fi, Bluetooth and mobile networks (optional). To turn on/off wireless connectivity, touch the Wi-Fi icon from Settings in the Charms Bar or in the Desktop system tray. The Networks settings screen will display on the right hand side of the screen.



4.1 Airplane Mode

When it is necessary to turn off all wireless radios, you can put the tablet into Airplane mode. To turn Airplane mode on or off, swipe left or right to toggle the switch.

4.2 Wi-Fi

To turn Wi-Fi on or off, swipe left or right to toggle the switch. When Wi-Fi is enabled, the tablet will scan for available networks and display them on the screen.

1. Touch the network you wish to connect to.
2. If the network is secured, you will be prompted to enter a password. If the network is open, you will be prompted to confirm that you want to connect to it.
3. When the Wi-Fi radio is turned on and your device finds a network that you previously connected to, it will automatically reconnect to it.

When the Wi-Fi radio is turned on and your device finds a network that you previously connected to, it will re-connect to it.

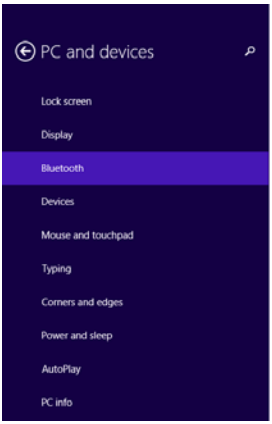
NOTE:

Leaving the Wi-Fi radio on will consume more power. To save battery power, turn it off when not in use.

4.3 Bluetooth

Turn Bluetooth On/Off

To turn Bluetooth on or off, from the **Charms Bar**, tap **Settings > Change PC settings**. Click on **PC and devices** and then select **Bluetooth** to open **Manage Bluetooth devices**. Slide the switch to turn Bluetooth on or off. If Bluetooth is already turned on, you can access the settings from the Desktop by tapping the Bluetooth icon in the system tray.



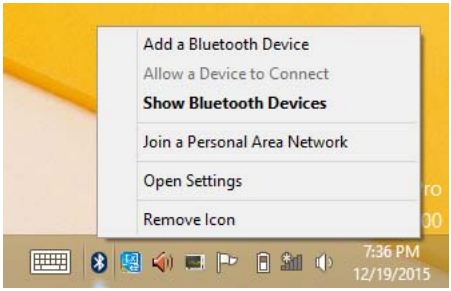
NOTE: Leaving the Bluetooth radio on will consume more power. To save battery power, turn it off when not in use.

Pairing with a Bluetooth Device

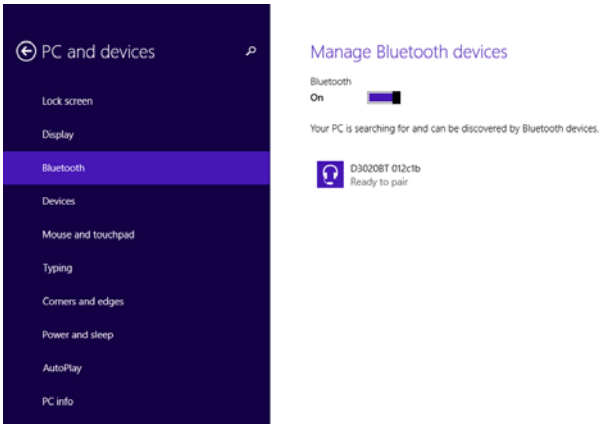
The first time you use a new Bluetooth device with your tablet, you must “pair” them, so that they know how to connect securely to each other. Afterwards, you will only need to connect to a previously paired device.

1. Make sure that the Bluetooth device you wish to pair is set as “discoverable” and within range.

2. From the Desktop, tap the Bluetooth icon and then tap Add a Bluetooth Device to open Manage Bluetooth devices (or follow the steps above using the Charm Bar).



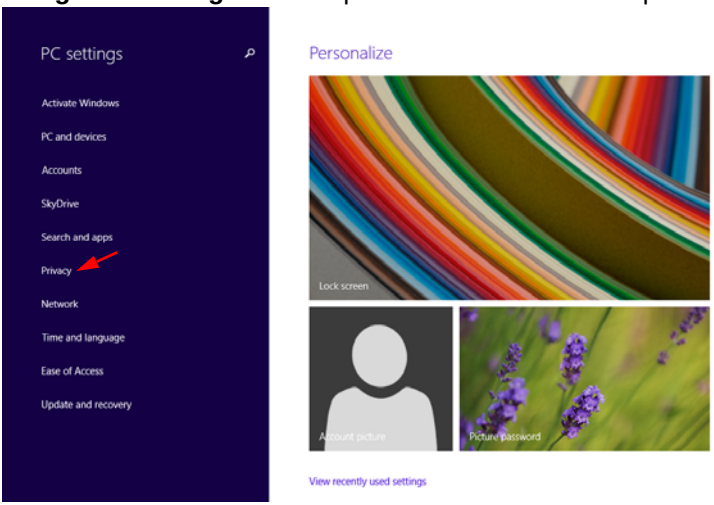
3. Select the device you wish to pair.



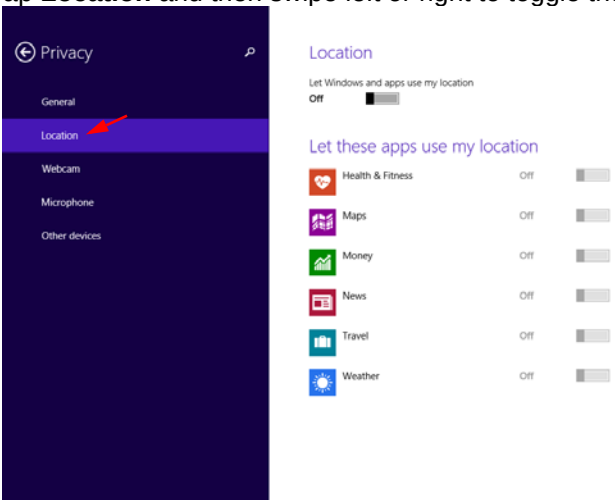
4. The tablet will scan for and display the IDs of all available Bluetooth devices within range.
5. On the list of discovered devices, touch the ID of the device you wish to pair with.
6. If prompted, enter the pass code of the device (usually 0000 or 1234). Refer to the documentation that came with the device.
7. If the pairing is successful, your tablet will connect to the device.

4.4 GPS

To turn GPS on or off, from the **Charms Bar**, tap **Settings > Change PC settings**. Then tap **PC and devices** and tap **Privacy**.



Tap **Location** and then swipe left or right to toggle the switch.



NOTE:

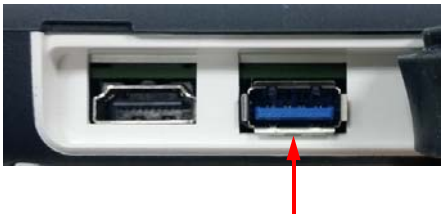
Leaving the GPS radio on will consume more power. To save battery power, turn it off when not in use.

5 External Connections

The IMT-BT has a USB 3.0 port, an HDMI display output, SD card slot and SIM card slot (optional) on the right side of the tablet, and an audio output on the left side. To access the connectors, use your fingernail to open the protective covers. Fully close the covers to maintain IP65 protection for the tablet.

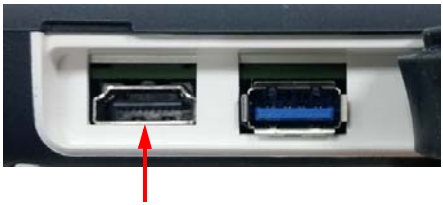
5.1 USB Port

To connect a USB device to the tablet, such as a flash drive or external storage, use the USB 3.0 port (Type A) on the right side of the tablet.



5.2 HDMI Display Output

The HDMI (Type A) port is on the right side of the tablet.



5.3 Using an SD Card

Inserting an SD card

1. Locate the SD slot on the right side of the tablet and open the cover.
2. Insert the card into the slot with the contacts facing upwards and the label facing the back of the tablet (refer to the drawing next to the SD card slot).
3. Close the cover.

Removing a SD card

You can safely remove the SD card when the tablet is shut down. If you need to remove the card while the tablet is on, eject the card first to prevent corrupting or damaging the card.

1. Eject the SD card (if necessary, depending on your device policy settings) by opening Windows Explorer and locating the SD card in “This Computer”. Right-click on the SD card and click “Eject”. The “Safe to Remove Hardware” notification will appear in the system tray.
2. Open the cover and press the edge of the card to release it, then pull the card out of the slot.
3. Close the cover.

SD card support list

Speed Class	Manufacturer	Model
Class 4	Transcend	TS8GUSDHC4
		TS16GUSDHC4
		TS32GUSDHC4
	Kingstone	SDC4/8G
		SDC4/16G
		SDC4/32G
Class 10	Kingstone	SDCX10/64G
UHS-1	Sandisk	SDSDQUA-008G
		SDSDQUA-016G
		SDSDQUA-032G
		SDSDQUA-064G

Table 5-1: SD card support list

5.4 Installing a SIM Card (optional)

For models with optional 3G/LTE Mini PCIe card:

Inserting a SIM card

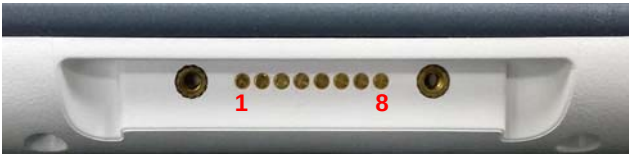
1. Locate the SIM slot on the right side of the tablet and open the cover.
2. Insert the card into the slot with the contacts side facing the back of the tablet and the beveled corner pointing into the slot (refer to the drawing next to the SIM card slot).
3. Close the cover.

To remove a SIM card, gently press the edge of the card to release it, then pull the card out of the slot.

5.5 Audio Out

Insert your headphone connector into the 3.5 mm stereo audio jack on the left side of the tablet.

5.6 Docking Port Connector



Pin	Signal
1	DOCK_12V
2	DOCK_12V
3	DOCK_IO1
4	DOCK_IO2
5	USB_CNP3
6	USB_CNN3
7	GNDP2
8	GNDP2

6 Data Collection

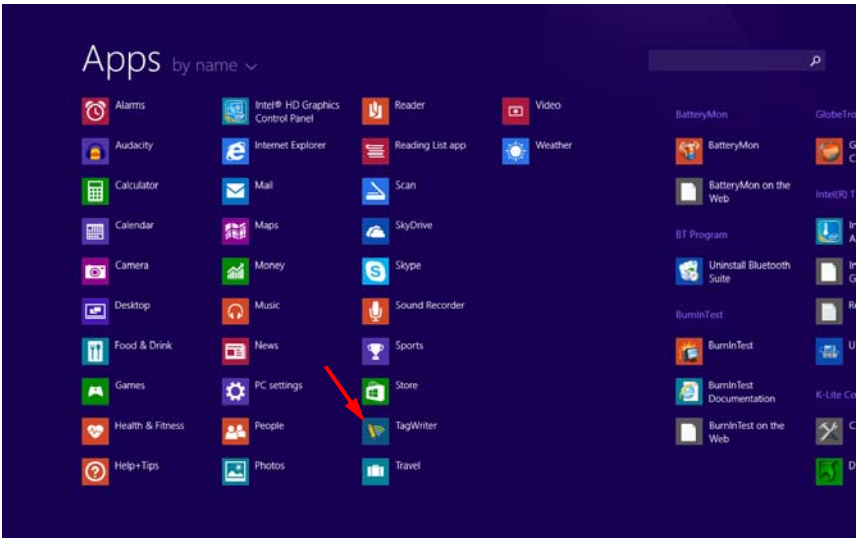
The IMT-BT is equipped with a Near Field Communication (NFC) reader that can scan RFID tags. A free app called NXP TagWriter is available on the Windows Store to test this function (other free apps are also available, for example: NFC Kits).

6.1 Download TagWriter

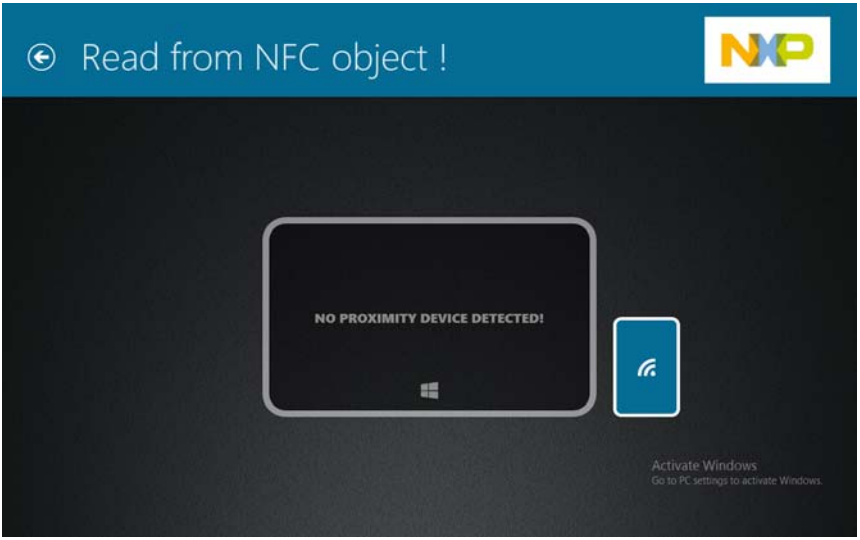
Go to the Windows Store following the steps described on page 20. Search for “NXP TagWriter” and install the app.

6.2 Scan RFID Tags

Open TagWriter by tapping the icon from the Apps screen.



Tap **Read** to start scanning for RFID tags.



Place the NFC reader of the tablet close to the RFID tag you wish to read.

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7 Care and Maintenance

- Avoid exposure to excessive moisture and extreme temperatures.
- Avoid exposure to direct sunlight or strong ultraviolet light for extended periods of time.
- Do not place anything on top of your tablet or drop objects on your tablet.
- Do not drop your tablet or subject it to severe shock.
- Do not subject your tablet to sudden and severe temperature changes. This may result in moisture condensation inside the unit and subsequent damage. In the event of moisture condensation, allow your tablet to dry out completely before powering it on.
- Avoid touching it with sharp objects to prevent scratches.
- Use a soft, lint-free cloth to clean the screen and the exterior of your device.
- Never attempt to disassemble, repair or make any modifications to your device. Disassembly, modification or any attempt at repair could cause damage to your device and even bodily injury or property damage and will void the warranty.
- Do not store or carry flammable liquids, gases or explosive materials in the same compartment as your device, its parts or accessories.

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8 Additional Information

8.1 Intended User Profile

Age preference 50-70 (Intended User Profile 1)

Education:
- vocational high school graduate
- major in electrical or electronics
- no maximum

Knowledge:
- minimum:
- understanding of the definition of voltage, current and frequency.
- understanding of the definition of Class I (basic insulation) and Class II (double insulation)
- can recognize the symbols of alternating current (AC), direct current (DC), protective earth (ground), earth (ground), Class II equipment, caution, operating instructions, "ON' (power) and "OFF" (power)
- no maximum

Language Skills:
- Languages as specified in the marketing plan for power supply.

Experience:
- minimum:
- under 75 years old: training under surveillance
- other: no special experience needed
- no maximum

Permissible Impairments:
- mild reading vision impairment or vision corrected to log MAR 0,2 (6/10 or 20/32)
- two arms / hand system capable of guiding and holding device
- average degree of aging-related short term memory impairment
- impaired by 40% resulting in 60% of normal hearing at 500 Hz to 2 kHz

Age preference 30-50 (Intended User Profile 2)

Education:
- vocational high school graduate
- major in electrical or electronics
- no maximum

Knowledge:
- minimum:
- understanding of the definition of voltage, current and frequency.
- understanding of the definition of Class I (basic insulation) and Class II (double insulation)
- can recognize the symbols of alternating current (AC), direct current (DC), protective earth (ground), earth (ground), Class II equipment, caution, operating instructions, "ON' (power) and "OFF" (power)
- no maximum

Language Skills:
- Languages as specified in the marketing plan for power supply.

Experience:
- minimum:
- under 50 years old: training under surveillance
- other: no special experience needed
- no maximum

Permissible Impairments:
- mild reading vision impairment or vision corrected to log MAR 0,2 (6/10 or 20/32)
- two arms / hand system capable of guiding and holding device
- average degree of aging-related short term memory impairment
- impaired by 40% resulting in 60% of normal hearing at 500 Hz to 2 kHz

Age preference 18-30 (Intended User Profile 3)

Education:
- vocational high school graduate
- major in electrical or electronic
- no maximum

Knowledge:
- minimum:
- understanding of the definition of voltage, current and frequency.
- understanding of the definition of Class I (basic insulation) and Class II (double insulation)
- can recognize the symbols of alternating current (AC), direct current (DC), protective earth (ground), earth (ground), Class II equipment, caution, operating instructions, "ON' (power) and "OFF" (power)

Language Skills:
- Languages as specified in the marketing plan for power supply.

Experience:
- minimum:
- under 30 years old: training under surveillance
- other: no special experience needed
- no maximum

Permissible Impairments:
- mild reading vision impairment or vision corrected to log MAR 0,2 (6/10 or 20/32)
- two arms / hand system capable of guiding and holding device
- average degree of aging-related short term memory impairment

8.2 EMC Information

Guidance and manufacturer's declaration – electromagnetic emissions		
The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment – guidance**
RF emissions CISPR 11	Group 1	The device uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The device is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer's declaration – electromagnetic immunity			
The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst **IEC 61000-4-4**	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge **IEC 61000-4-5**	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Interruptions and voltage variations on power supply input lines **IEC 61000-4-11**	<5% *U*T (>95% dip in *U*T) for 0,5 cycle 40% *U*T (60% dip in *U*T) for 5 cycles 70% *U*T (30% dip in *U*T) for 25 cycles <5% *U*T (>95% dip in *U*T) for 5 sec	<5% *U*T (>95% dip in *U*T) for 0,5 cycle 40% *U*T (60% dip in *U*T) for 5 cycles 70% *U*T (30% dip in *U*T) for 25 cycles <5% *U*T (>95% dip in *U*T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field **IEC 61000-4-8**	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: *U*T is the A.C. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity			
The model device is intended for use in the electromagnetic environment specified below. The customer or the user of the model device should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2,5 GHz	3 Vrms 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = 1{,}2\sqrt{P}$ $d = 1{,}2\sqrt{P}$ 80 MHz to 800 MHz $d = 2{,}3\sqrt{P}$ 800 MHz to 2,5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the device.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the device

The device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the device as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	**Separation distance according to frequency of transmitter** m		
	150 kHz to 80 MHz $d = 1{,}2\sqrt{P}$	**80 MHz to 800 MHz** $d = 1{,}2\sqrt{P}$	**800 MHz to 2,5 GHz** $d = 2{,}3\sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

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Important Safety Instructions

For user safety, please read and follow all **instructions**, **WARNINGS**, **CAUTIONS,** and **NOTES** marked in this manual and on the associated equipment before handling/operating the equipment.

- Read these safety instructions carefully.
- Keep this user's manual for future reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- To avoid electrical shock and/or damage to equipment:
  - Keep equipment away from water or liquid sources;
  - Keep equipment away from high heat or high humidity;
- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.
- Equipment must be serviced by authorized technicians when:
  - The power cord or plug is damaged;
  - Liquid has penetrated the equipment;
  - It has been exposed to high humidity/moisture;
  - It is not functioning or does not function according to the user's manual;
  - It has been dropped and/or damaged; and/or,
  - It has an obvious sign of breakage.
- Do not use a battery other than one approved for your device.

Risk of explosion if battery is replaced with one of an incorrect type. Dispose of used batteries appropriately.

- Do not use an AC adapter other than one approved for your device. Use of another type of AC adapter may result in malfunction and/or danger.
  - Do not use the AC adapter in a high moisture environment. Never touch the AC adapter when your hands or feet are wet.
  - Allow adequate ventilation around the AC adapter when using it to operate the device or charge the battery. Do not cover the AC adapter with paper or other objects that will reduce cooling. Do not use the AC adapter while it is inside a carrying case.
  - Connect the AC adapter to a proper power source. The voltage and grounding requirements are found on the product case and/or packaging.
  - Do not use the AC adapter if the cord becomes damaged.
  - Do not attempt to service the adapter. There are no user serviceable parts inside. Replace the unit if it is damaged or exposed to excess moisture.

Getting Service

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