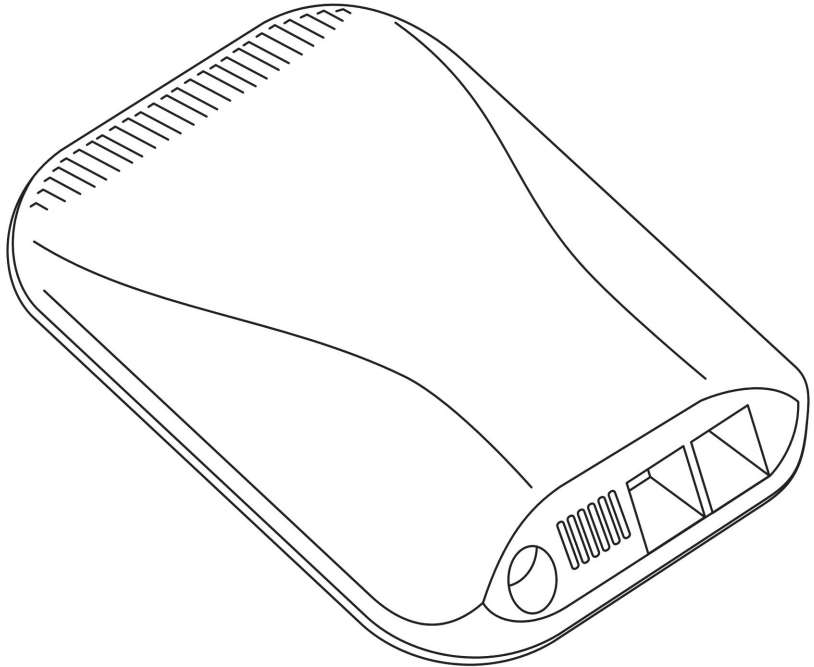




# AP-7602



## Wireless Wallplate

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## Installation Guide



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# 1 Introduction

The AP-7602 11AC Wireless Wallplate is designed for installation over a structured cable telecom box, or installed flat to a wall surface. The AP-7602 is ideally suited for 802.11 micro-cell networks in hotels, dormitory housing and similar multi-tenant buildings.

If new to the Wireless Wallplate's Access Point technology, refer to the *WiNG Access Point System Reference Guide* to familiarize yourself with the feature set supported by the WiNG operating system. The guide is available at [www.zebra.com/support](http://www.zebra.com/support).

This document is written for the qualified network device installer.

## 1.1 Document Conventions

The following graphical alerts are used in this document to indicate notable situations:



**NOTE** Tips, hints, or special requirements that you should take note of.

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**CAUTION** Care is required. Disregarding a caution can result in data loss or equipment malfunction.

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**WARNING!** Indicates a condition or procedure that could result in personal injury or equipment damage.

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## 1.2 Warnings

- Read all installation instructions and site survey reports, and verify correct equipment installation before connecting the Wireless Wallplate.
- Remove jewelry and watches before installing this equipment.
- Verify any device connected to this unit is properly wired and grounded.
- Verify there is adequate ventilation around the device, and that ambient temperatures meet equipment operation specifications.

### 1.3 Site Preparation

- Consult your site survey and network analysis reports to determine specific equipment placement, power drops, and so on.
- Assign installation responsibility to the appropriate personnel.
- Identify and document where all installed components are located.
- Ensure adequate, dust-free ventilation to all installed equipment.
- Identify and prepare Ethernet connections.
- Verify cable lengths are within the maximum allowable distances for optimal signal transmission.

### 1.4 AP-7602 Package Contents

An AP-7602 is available in internal antenna (AP-7602) configurations. An AP-7602 ships with the following:

- AP-7602 Wireless Wallplate
- AP-7602 Quick Install Guide
- 10cm RJ-45 cable
- Mounting bracket
- One security screw

#### 1.4.1 Features

An AP-7602 supports the following feature set:

- Two RJ-45 connectors (GE1/GE2)
- Three LED indicators (2.4GHZ, 5GHZ and BLE)
- One 2.4 GHz 802.11n radio and one 5 GHz 802.11ac radio
- One BT/BLE radio

GE1/POE accepts 802.3at or 802.3af compliant power from an external source.



**NOTE** When operating in a Gigabit Ethernet environment, CAT-5e or CAT-6 cable is recommended for Gigabit operation.

---

## 1.5 AP-7602 Antennas

An AP-7602 internal antenna Wireless Wallplate supports the following:

<b><i>2.4 GHZ Gain (dBi)</i></b>	<b><i>5 GHZ Gain (dBi)</i></b>
3.76dBi	5.95dBi

## 2 Hardware Installation

### 2.1 Installation Instructions

The AP-7602 includes a wall mounting bracket suitable to install the unit to a flush wall surface or to a standard telecommunications junction box.

To prepare for the installation:

1. Match the part number on the purchase order with the part numbers in the packing list and on the case of the AP-7602.
2. Verify the contents of the box include the intended AP-7602, and the included hardware matches the package contents (see [AP-7602 Package Contents on page 6](#)).

<b>Part Number</b>	<b>Description</b>
AP-7602-68B30-US	802.11ac dual band radio 1x1; or single band radio 2x2, internal antenna, BLE, 2xGE (US only)
AP-7602-68B30-EU	802.11ac dual band radio 1x1; or single band radio 2x2, internal antenna, BLE, 2xGE (EU only)
AP-7602-68B30-IL	802.11ac dual band radio 1x1; or single band radio 2x2, internal antenna, BLE, 1xGE (Israel only)
AP-7602-68B30-WR	802.11ac dual band radio 1x1; or single band radio 2x2, internal antenna, BLE, 2xGE (WR)

3. Review site survey and network analysis reports to determine the location and mounting position for the AP-7602.
4. Connect a CAT-5 or better Ethernet cable to a compatible 802.3at or 802.3af power source and run the cable to the installation site. Ensure there is sufficient slack on the cable to perform the installation steps.



**NOTE** When operating in a Gigabit Ethernet environment, CAT-5e or CAT-6 cable is recommended for Gigabit operation.



## 2.2 Precautions

Before installing an AP-7602, verify the following:

- You are using the correctly rated power solution for the AP-7602 (either the power injector or the external power supply)

AP-PSBIAS-2P3-ATR	PWR INJECTOR: SINGLE PORT HI-PWR 802.3AT
PWR SPLY:100-240 VAC, 12VDC, 1.0A min, 2.5mm barrel, center positive, maximum operating temperature at least 40°C	AC/DC Power Supply

- Do not to install the AP-7602 in wet or dusty areas.
- Verify the environment has a continuous temperature range between 32° F to 104° (0-40°C).
- This product is intended for indoor use only.

## 2.3 Placing the AP-7602

For optimal performance, install the AP-7602 away from transformers, heavy-duty motors, fluorescent lights, microwave ovens, refrigerators and other industrial equipment. Signal loss can occur when metal, concrete, walls or floors block transmission. Install the AP-7602 in an open area or add Wireless Wallplates as needed to improve coverage.

Antenna coverage is analogous to lighting. Users might find an area lit from far away to be not bright enough. An area lit sharply might minimize coverage and create *dark areas*. Uniform antenna placement in an area (like even placement of a light bulb) provides even, efficient coverage.

To maximize the radio coverage area, Zebra recommends conducting a site survey to define and document radio interference obstacles before installing the AP-7602.

## 2.4 Power Injector System

An AP-7602 can receive power via an Ethernet cable connected to the GE1/POE (LAN) port. The AP-7602 can receive power from either a standard 802.3af PSE connected to GE1, or a 12VDC power supply.

When users purchase a WLAN solution, they often need to place units in obscure locations. In the past, a dedicated power source was required for each AP-7602 in addition to the Ethernet infrastructure. This often required an electrical contractor to install power drops at each AP-7602 location. The Power Injector merges power and Ethernet into one cable,

reducing the burden of installation and allowing optimal AP-7602 placement in respect to the intended coverage area.



**CAUTION** Using a non-compliant injector, or an injector supporting legacy modes will not allow the AP-7602 to function at optimum performance levels.

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The Power Injector is a high power POE Injector delivering up to 30 watts. The AP-7602 can only use a Power Injector when connecting the unit to the AP-7602's GE1/POE port. The Power Injector is separately ordered and not shipped with an existing AP SKU.

The Power Supply is not included with the AP-7602 and is orderable separately as an accessory. Disconnecting AC power from the Wireless Wallplate causes the unit to re-boot before sourcing power from a POE power injector. If the AP is operating using injector supplied power, the AP will not automatically reboot if an AC adapter is connected. The AP-7602 continues to operate with power supplied from the AC adapter without change to the operating configuration. If using AC adapter supplied power and a change to the AP's operating configuration is warranted, the AP-7602 needs to be manually rebooted by the customer.

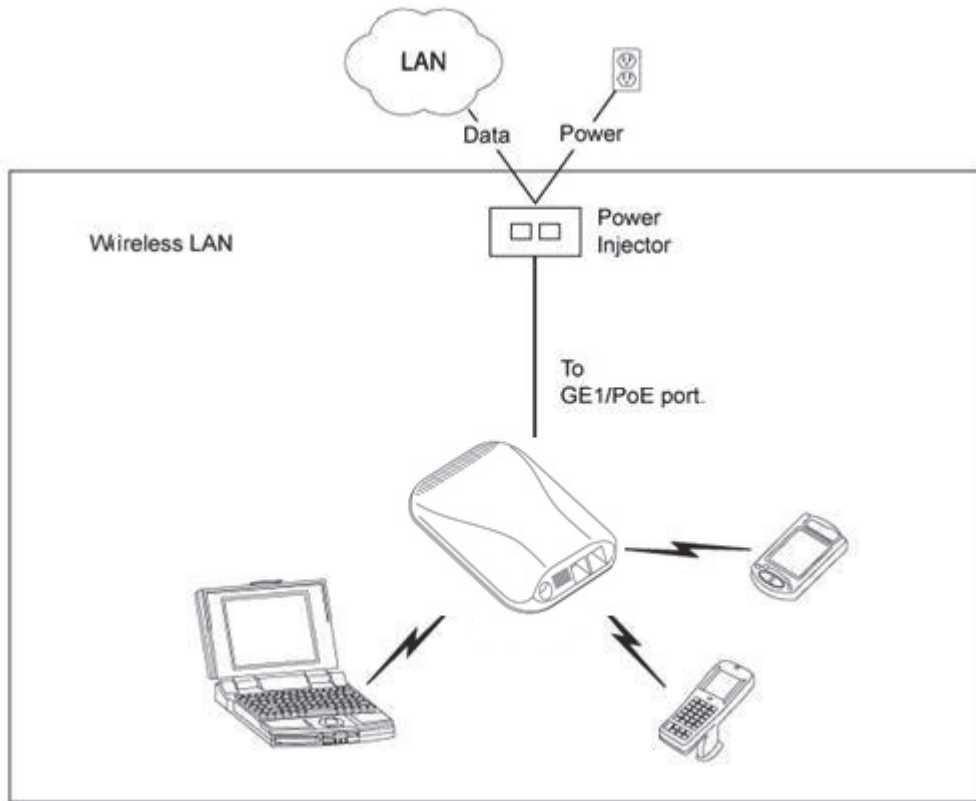


**CAUTION** The AP-7602 supports any standards-based compliant power source. However, using the wrong solution (including a POE system used on a legacy device) could either limit functionality or severely damage the AP-7602 and void the product warranty.

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A separate Power Injector is required for each AP-7602 comprising the network.



The Power Injector can be installed free standing, on an even horizontal surface or wall mounted using the power injector's wall mounting key holes. The following guidelines should be adhered to before cabling the Power Injector to an Ethernet source and an AP-7602:

- Do not block or cover airflow to the Power Injector.
- Keep the Power Injector away from excessive heat, humidity, vibration and dust.
- The Power Injector isn't a repeater, and does not amplify the Ethernet signal. For optimal performance, ensure the Power Injector is placed as close as possible to the data port.



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**CAUTION** To avoid problematic performance and restarts, disable POE from a wired switch port connected to an AP-7602 if mid-span *power sourcing equipment* (PSE) is used between the two, regardless of the manufacturer of the switch.

---



**CAUTION** Ensure AC power is supplied to the Power Injector using an AC cable with an appropriate ground connection approved for the country of operation.

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To install the Power Injector to an Ethernet data source and an AP-7602:

1. Connect the Power Injector to an AC outlet (100VAC to 240VAC).
2. Connect an RJ-45 Ethernet cable between the Power Injector **Data & Power Out** connector and the AP-7602's GE1/POE port.
3. Connect an RJ-45 Ethernet cable between the network data supply (host) and the Power Injector **Data In** connector.

Ensure the cable length from the Ethernet source (host) to the Power Injector and AP-7602 does not exceed 100 meters (333 ft).

The Power Injector has no On/Off power switch. The Injector receives power and is ready for device connection and operation as soon as AC power is applied. Refer to the Installation Guide shipped with the Power Injector for a description of the LEDs.

## 2.5 Mounting Instructions

An AP-7602 can be mounted to a flat wall surface or over an existing telco junction box.



**NOTE** Before mounting and installing the AP-7602, obtain the unit's default IP address from the backside of the unit. This default IP address is needed when connecting to the Access Point.

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### 2.5.1 Wall Mount Procedure

To mount an AP-7602 Access Point to a wall surface (no telco box):

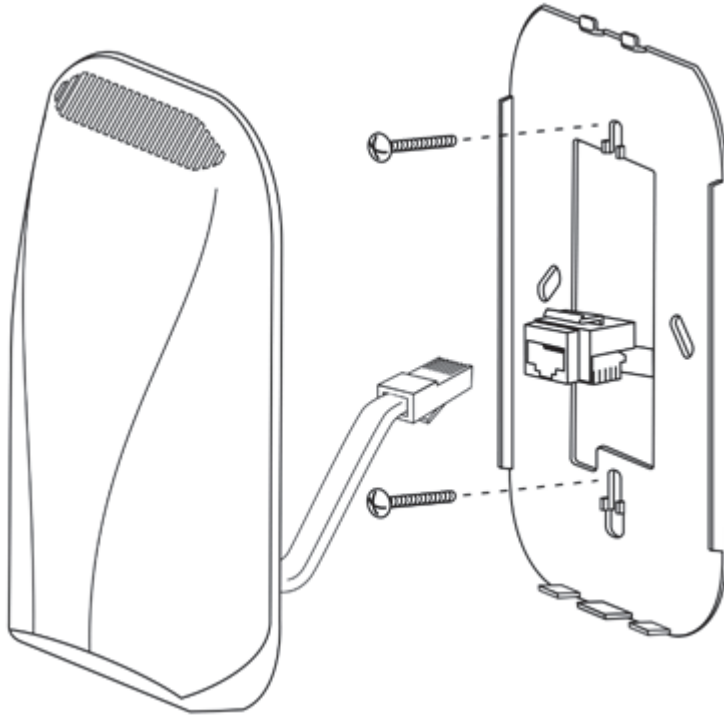
1. Place the mounting bracket against the wall.
2. Mark the screw hole locations.



**NOTE** When pre-drilling a hole the recommended hole size is 4mm (0.16in.).

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3. At each point, drill a hole in the wall and attach the mounting bracket.



4. Cable the AP-7602 using either the Power Injector solution, an approved AP-7602 power supply or a POE enabled switch.  
For Power Injector installations:
  - a. Connect a RJ-45 CAT5e (or CAT6) Ethernet cable between the Power Injector **Data & Power Out** connector and the AP-7602's GE1/POE port.
  - b. Connect a RJ-45 CAT5e (or CAT6) Ethernet cable between the network data supply (host) and the Power Injector **Data In** connector.
  - c. Ensure the cable length from the Ethernet source (host) to the Power Injector and AP-7602 does not exceed 100 meters (333 ft). The Power Injector has no On/Off power switch. The Power Injector receives power as soon as AC power is applied.For standard power adapter (non Power Injector) and line cord installations:
  - a. Connect a RJ-45 Ethernet cable between the network data supply (host) and the AP-7602's GE1/POE port.
  - b. Connect the power supply line cords to the power adapter.
  - c. Attach the power adapter cable into the power connector on the AP-7602.
  - d. Attach the power supply line cord to a power supply.
5. Once cabled, snap the AP-7602 on the mounting plate

6. Verify the AP-7602 is receiving power by observing the LEDs are lit or flashing. For more information on AP-7602 LED behavior, see [LED Indicators on page 17](#).
7. The AP-7602 is ready to configure.



**CAUTION** Using an incorrectly rated power supply could damage the AP-7602 and void the product warranty. Do not actually connect to the power source until the cabling portion of the installation is complete.

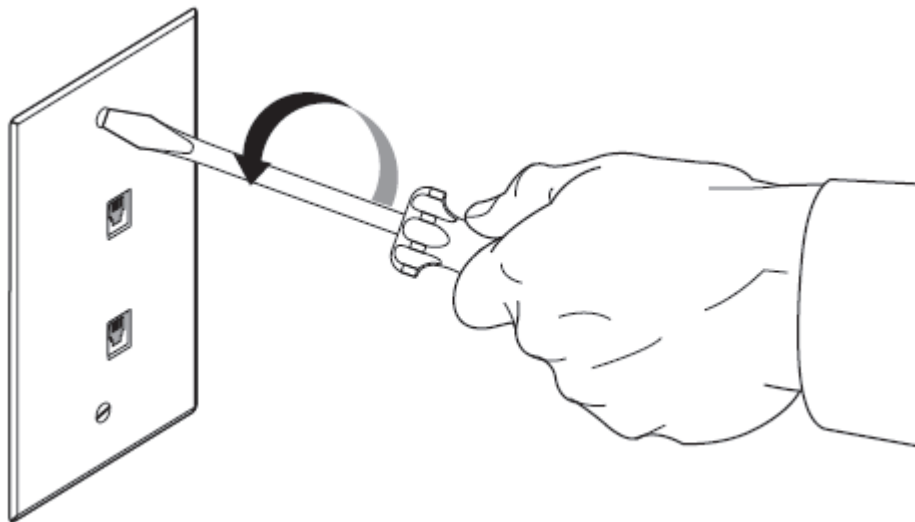
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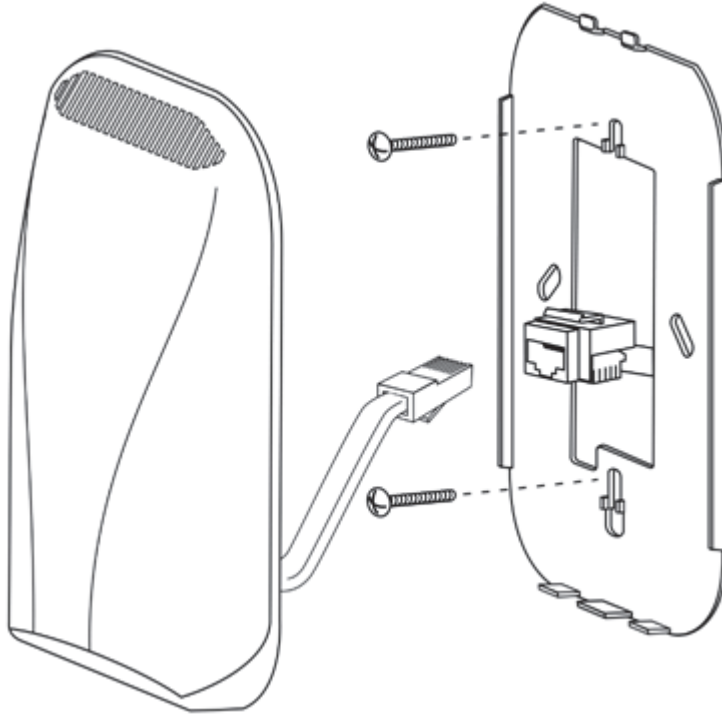
## 2.5.2 Telco Box Installation

For telco Box installations, the Wireless Wallplate is installed directly over the standard wall plate supplying Ethernet. All cabled electrical connections are made within a recessed well in the housing of the Access Point. To install the Wireless Wallplate over a telco box:

1. Remove the existing screws and the existing wallplate cover.



2. Gently push RJ-45 outlets into telco box.

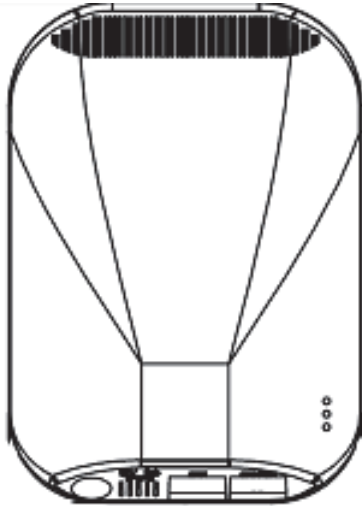


3. Reuse the existing screws to screw the mounting plate to the telco box.
4. Connect one end of the 10cm RJ-45 cable into GE1.
5. Route the GE1 cable back through the routing channel on the underside of the Wireless Wallplate.
6. Plug the other end of the 10cm RJ-45 cable into the RJ-45 outlet.
7. Snap the Wireless Wallplate to the mounting plate.
8. Verify the unit has power by observing the LEDs. For more information on AP-7602 LED behavior, see [LED Indicators on page 17](#).
9. The AP-7602 is ready to configure.



## 2.6 LED Indicators

The AP-7602's three LED activity indicators are located on the front of the housing and are visible through the enclosure.



The LEDs provide a status display indicating error conditions, transmission, and network activity for the 5 GHz 802.11ac (amber) radio, 2.4 GHz 802.11n (green) radio and Bluetooth activity (blue) radio.



**NOTE** LED behavior for the AP-7602 are identical in both WLAN and client bridge modes.

<b>Task</b>	<b>Green</b>	<b>Amber</b>	<b>Blue</b>
Firmware Update	Off	On	Off
Radio Disabled	Off	Off	N/A
Radio Enabled Not Configured	Solid Green	Solid Amber	N/A
Radio Enabled and Configured	Blink 500ms Out of sync with Amber LED	Blink 500ms Out of sync with Green LED	N/A
Sensor with Server Connected	On 1 second, Off 1 second Synced with Amber LED	On 1 second, Off 1 second Synced with Green LED	N/A

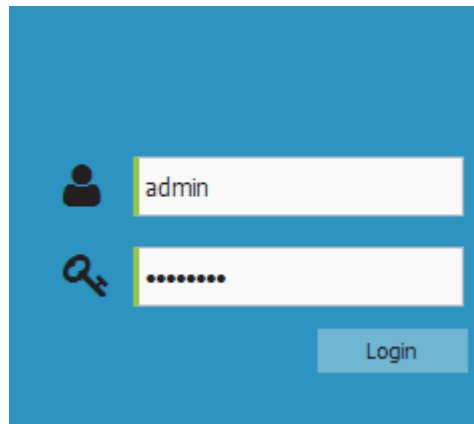
<b><i>Task</i></b>	<b><i>Green</i></b>	<b><i>Amber</i></b>	<b><i>Blue</i></b>
Sensor with Server Not Connected	On 1 second, Off 5 seconds Synced with Amber LED	On 1 second, Off 5 seconds Synced with Green LED	N/A
Locate AP Mode	Irregular Blink Rate, Green/Amber/Blue	Irregular Blink Rate, Green/Amber/Blue	Irregular Blink Rate, Green/Amber/Blue
Bluetooth Radio Enabled	N/A	N/A	Solid Blue
Bluetooth Radio Disabled	N/A	N/A	Off

### 3 Basic Configuration

Once the AP-7602 is installed and powered on, complete the following WiNG Assist configuration steps to get the AP-7602 up and running with minimal administrative intervention.

Startup Assist updates existing settings. To delete or revise existing Startup Assist settings, either rerun Startup Assist or navigate to where those parameters appear in the user interface and update them accordingly. Refer to the more advanced configuration documentation available on the Zebra support site for updating the management interface beyond the scope of the WiNG Assist configuration described in this guide. For more information, see [www.zebra.com/support](http://www.zebra.com/support).

1. Power the AP-7602 using an appropriate power adapter, PoE injector, or PoE switch.
2. Connect to the AP-7602. The default IP address is located on the backside of the AP-7602.



3. Enter the default username *admin* in the **Username** field.
4. Enter the default password *admin123* in the **Password** field.
5. Select the **Login** button to load the management interface.  
If logging in using a factory default configuration, Startup Assist automatically displays.

Start up Assist

Start up assist provides the basic setup information required to get one wireless LAN operational. Optionally, you may enable the guest portal. For Detailed configuration, Please access the appropriate page

**Virtual Controller:**

**Country Name:** \* United States-us

**Timezone:** Etc/UTC

**Date & Time:** 01/03/2016 Hour: 9 Mins: 2  AM  PM

---

**WLAN Settings**

**WLAN 1 Name:**

**Authentication:**  Open  PSK

**Key (If PSK):** \*   Show  Ascii  Hex

**WLAN 2 Name:**

**Authentication :**  Open  PSK

**Key (If PSK):** \*   Show  Ascii  Hex

If Startup Assist does not automatically display, it can be invoked at any time from the upper-left of the **Basic Configuration** screen.

**NOTE** Startup Assist automatically sets the radio transmit power and enables Auto Channel selection. The AP-7602's name is automatically assigned based on the device type and the last three octets of the device's hardcoded MAC address. WLAN 1 and WLAN 2 both use VLAN ID 2200 by default. To adjust any of these parameters, edit the appropriate configuration screen directly. Refer to the reference material available on Zebra Support for configuring the AP-7602 beyond the scope of the minimal WiNG Assist configuration described in this guide. For more information, go to [www.zebra.com/support](http://www.zebra.com/support).



6. Set the following Startup Assist parameters:
  - *Virtual Controller* - Select this option to set this AP-7602 as a Virtual Controller capable of managing and provisioning up to 64 AP-7602 models. Those AP-7602

Wireless Wallplates managed by this Virtual Controller list this AP-7602's Name as its own. Only one Virtual Controller can be designated.

- *Country Name* - Set the country specific to this AP-7602's deployment location. Selecting the correct country is central to legal operation. Each country has its own regulatory restrictions concerning electromagnetic emissions and the maximum RF signal strength that can be transmitted.



**NOTE** Country Name can not be changed when deployed in the United States or Canada.

---

- *Timezone* - Use the drop-down menu to specify the geographic timezone where the AP-7602 is deployed. Different geographic time zones have daylight savings clock adjustments, so specifying the timezone correctly is important to account for geographic time changes.
- *Date & Time* -Set the date, hour and minute for the AP-7602's current system time. Specify whether the current time is in the AM or PM.
- *WLAN 1 Name* - Provide a unique name for this WLAN as its network identifier. This is a required setting. The name is used for the SSID and is assigned to both of the AP-7602's radios.
- *Authentication* - Select PSK to apply a 64 character maximum passphrase. Provide the passphrase in either ASCII or Hex format. The authenticating device must use the same PSK algorithm during authentication. Selecting **Show** displays the key in exposed plain text (not recommended).

Selecting **Open** is not a recommended authentication scheme, as it would provide the AP-7602's WLAN no security via credential exchange and would only make sense in a network where no sensitive data is either transmitted or received.

7. Select **Apply** to save and commit the Startup Assist changes to the AP-7602's configuration. Select **Discard** to revert to the last saved configuration.

The *Virtual Controller*, *Country Name*, *Timezone* and *Date & Time* portions of the Basic Settings screen update with the settings applied and saved in the Startup Assist screen. WLAN updates made in Startup Assist are displayed in Wireless screen, not the Basic Configuration screen.

## 4 AP-7602 Wireless Wallplate Specifications

### 4.1 Electrical Characteristics

An AP-7602 has the following electrical characteristics:

Operating Current & Voltage	12VDC, 1A, 2.5mm barrel connector, center positive
Power over Ethernet	48VDC, .25A, PoE

### 4.2 Physical Characteristics

An AP-7602 has the following physical characteristics:

Dimensions	4.01 in. L x 5.70 in. W x 1.10 in. H 102 mm L x 145 mm W x 28 mm H
Weight	0.5 lbs/0.23 kg
Operating Temperature	32° F to 104° F/0° C to 40° C
Storage Temperature	-40° F to 158° F/-40° C to 70° C
Operating Humidity	85% RH non-condensing
Operating Altitude (maximum)	8,000 ft @ 28C
Storage Altitude (maximum)	30,000 ft
Electrostatic Discharge	8KV air, 6KV contact

## 4.3 Radio Characteristics

The AP-7602 has the following radio characteristics:

Data Rates Supported	802.11b/g: 1,2,5.5,11,6,9,12,18,24,36,48 and 54 Mbps 802.11a: 6,9,12,18,24,36,48, and 54 Mbps 802.11n: MCS 0-15 up to 300 Mbps 802.11ac: MCS 0-9 up to 866.7 Mbps
Wireless Medium	<i>Direct Sequence Spread Spectrum (DSSS)</i> <i>Orthogonal Frequency Division Multiplexing (OFDM)</i>
Network Standards	IEEE 802.11a/b/g/n/ac 802.11d and 802.11i WPA2 WMM and WMM-UAPSD
Transmit Power Adjustment	1dB increments

## 5 Regulatory Information

### 5.1 Regulatory Information

This guide applies to the following Model Number AP-7602.

Zebra devices are designed to be compliant with rules and regulations in locations they are sold and will be labeled as required.

Local language translations are available at the following Website: [www.zebra.com/support](http://www.zebra.com/support)

Any changes or modifications to Zebra equipment, not expressly approved by Zebra could void the user's authority to operate the equipment.

Zebra devices are professionally installed, the Radio Frequency Output Power will not exceed the maximum allowable limit for the country of operation.

Antennas: Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could cause damage and may violate regulations.

#### **Bluetooth®** Wireless Technology

This is an approved Bluetooth® product. For more information or to view the End Product Listing, please visit <https://www.bluetooth.org/tpg/listings.cfm>.

### 5.2 Wireless Device Country Approvals

Regulatory markings subject to certification are applied to the device signifying the radio(s) is/are approved for use in the following countries and continents: United States, Canada, Japan, China, South Korea, Australia, and Europe.

Please refer to the *Declaration of Conformity* (DoC) for details of other country markings. This is available at: [www.zebra.com/doc](http://www.zebra.com/doc)

**Note:** For 2.4GHz or 5GHz Products: Europe includes Austria, Belgium, Bulgaria, Croatia, Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.



Operation of the device without regulatory approval is illegal.



### 5.2.1 Country Selection

Select only the country in which the device will be used. Any other selection will make the operation of this device illegal.



**NOTE** Country Name can not be changed when deployed in the United States or Canada.

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### Country Roaming

This device incorporates the International Roaming feature (IEEE802.11d) which will ensure the product operates on the correct channels for the particular country of use.

### Ad-Hoc Operation (2.4 GHz band)

Ad-Hoc operation is limited to Channels 1-11 (2412-2462 MHz).

### 5.2.2 Frequency of Operation – FCC and IC 5 GHz Only

Industry Canada Statement:

**Caution:** The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-Channel mobile satellite systems. High power radars are allocated as primary users (meaning they have priority) over other frequencies and these could cause interference and/or damage to LE-LAN devices.

**Attention:** Le dispositif pour la bande 5150-5250 MHz est uniquement destiné à une utilisation en intérieur afin de réduire les brouillages préjudiciables aux systèmes de satellites mobiles co-canaux. Les radars haute puissance sont Alloués en tant qu'utilisateurs principaux (c'est-à-dire qu'ils ont la priorité) par rapport aux autres fréquences et qui pourraient causer des interférences et / ou endommager les dispositifs LE-LAN.

### 2.4 GHz Only

The available channels for 802.11bg operation in the US are Channels 1 to 11. The range of channels is limited by firmware.

## 5.3 Health and Safety Recommendations



### Ergonomic Recommendations

**Caution:** In order to avoid or minimize the potential risk of ergonomic injury follow the recommendations below. Consult with your local Health & Safety Manager to ensure that you are adhering to your company's safety programs to prevent employee injury.

- Reduce or eliminate repetitive motion
- Maintain a natural position
- Reduce or eliminate excessive force
- Keep objects that are used frequently within easy reach
- Perform tasks at correct heights
- Reduce or eliminate vibration
- Reduce or eliminate direct pressure
- Provide adjustable workstations
- Provide adequate clearance
- Provide a suitable working environment
- Improve work procedures

Wireless devices transmit radio frequency energy and may affect medical electrical equipment. When installed adjacent to other equipment, it is advised to verify that the adjacent equipment is not adversely affected.

### Pacemakers

Pacemaker manufacturers recommended that a minimum of 15cm (6 inches) be maintained between a handheld wireless device and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with independent research and recommendations by Wireless Technology Research.

### Persons with Pacemakers:

- Should ALWAYS keep the device more than 15cm (6 inches) from their pacemaker when turned ON.
- Should not carry the device in a breast pocket.
- Should use the ear furthest from the pacemaker to minimise the potential for interference.
- If you have any reason to suspect that interference is taking place, turn OFF your device.

## Other Medical Devices

Please consult your physician or the manufacturer of the medical device to determine if the operation of your wireless product may interfere with the medical device.

## 5.4 RF Exposure Guidelines

### 5.4.1 Safety Information

#### **Reducing RF Exposure - Use Properly**

Only operate the device in accordance with the instructions supplied.

### 5.4.2 International

The device complies with internationally recognized standards covering human exposure to electromagnetic fields from radio devices. For information on “International” human exposure to electromagnetic fields refer to the Zebra *Declaration of Conformity* (DoC) at:

[www.zebra.com/doc](http://www.zebra.com/doc).

For further information on the safety of RF energy from wireless devices, see

<https://www.zebra.com/us/en/about-zebra/company-information/corporate-responsibility.html>

located under Corporate

### 5.4.3 Access Points

Access Points must conform to U.S. Federal Communications Commission's (FCC) limitations. FCC has now stipulated a 21dBm EIRP limit for power directed 30 degrees above the horizon.

## 5.5 Power Supply

Use ONLY a Zebra approved UL LISTED ITE (IEC/EN 60950-1, LPS/SELV) power supply with electrical ratings: Output 12 VDC, min 1A with a maximum ambient temperature of at least 40 degrees C. Use of alternative power supply will invalidate any approvals given to this unit and may be dangerous.

Alternately this device may be powered from a 802.3af compliant power source which has been certified by the appropriate agencies, or by a Zebra approved UL LISTED ITE (IEC/EN 60950-1, LPS/SELV) power supply with electrical ratings: Output 48Vdc, min 0.25A, with a recommended ambient temperature greater than 50 degrees C. Use of alternative power supply will invalidate any approvals given to this unit and may be dangerous.

The product is to be connected to PoE networks without routing to the outside plant.

## 5.6 Radio Frequency Interference Requirements—FCC



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.

### 5.6.1 Radio Transmitters (Part 15)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The equipment shall be subject to professional engineering personnel to install and configure, it just can be used, and may not be sold directly to the general consumer. Based on 20cm separation distance to assess the amount of electromagnetic exposure (MPE).

MPE limit  $1\text{mW}/\text{cm}^2$ ; Test result is  $0.39207\text{ mW}/\text{cm}^2$

When using this device, it is recommended to have a separation distance of 20 cm.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## 5.6.2 Radio Frequency Interference Requirements - Canada

### CAN ICES-3 (B)/NMB-3(B)

#### Radio Transmitters

This device complies with Industry Canada's licence-exempt RSSs. 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 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 radio électrique subi même si le brouillage est susceptible d'en compromettre le fonctionnement.

Label Marking: The Term 'IC:' before the radio certification only signifies that Industry Canada technical specifications were met.

Étiquette de marquage: Le terme "IC" avant la certification radio signifie que le produit est compatible avec le spécification Industrie Canada

The equipment shall be subject to professional engineering personnel to install and configure, it just can be used, and may not be sold directly to the general consumer. Based on 20cm separation distance to assess the amount of electromagnetic exposure (MPE).

2.4GHz Band: MPE limit 5.4039 W/m<sup>2</sup>; Test result is 1.5215 W/m<sup>2</sup>

5GHz Band: MPE limit 9.7564 W/m<sup>2</sup>; Test result is 2.2977 W/m<sup>2</sup>

When using this device, it is recommended to have a separation distance of 20 cm.

L'équipement doit être assujéti au personnel d'ingénierie. Configurer, il peut seulement être utilisé, et ne peut pas être vendu directement au consommateur général.

Basé sur une distance de séparation de 20 cm pour évaluer la quantité d'exposition électromagnétique (MPE).

2.4GHz Band: MPE limite 5.4039 W / m<sup>2</sup>; Le résultat du test est de 1.5215 W / m<sup>2</sup>

5GHz Band: MPE limite 9.7564 W / m<sup>2</sup>; Le résultat du test est de 2.2977 W / m<sup>2</sup>

Lors de l'utilisation de cet appareil, il est recommandé d'avoir une distance de séparation de 20 cm.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet émetteur ne doit pas être co-implanté ou fonctionner en conjonction avec une autre antenne ou émetteur

## 5.7 CE Marking and European Economic Area (EEA)



The use of 2.4GHz RLAN's, for use through the EEA, have the following restrictions:

- Maximum radiated transmit power of 100 mW EIRP in the frequency range 2.400 -2.4835 GHz.

*Bluetooth®* Wireless Technology for use throughout the EEA has the following restrictions:

- Maximum radiated transmit power of 100 mW EIRP in the frequency range 2.400 -2.4835 GHz.

## 5.8 Statement of Compliance

Zebra hereby declares that this radio equipment is in compliance with Directive 2011/65/EU and 1999/5/EC or 2014/53/EU (2014/53/EU supersedes 1999/5/EC from 13th June 2017).

The full text of the EU Declaration of Conformity is available at the following internet address [www.zebra.com/doc](http://www.zebra.com/doc).

## 5.9 Japan (VCCI) - Voluntary Control Council for Interference

Class B ITE

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。  
取扱説明書に従って正しい取り扱いをして下さい。 VCCI-B

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

## 5.10 Korea Warning Statement for Class B ITE

기종별	사용자안내문
B급 기기 (가정용 방송통신기자재)	이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Class	User's Guide
<p style="text-align: center;">Class B (Broadcasting Communication Device for Home Use)</p>	<p style="text-align: center;">This device obtained EMC registration mainly for home use (Class B) and may be used in all areas.</p>

## 5.11 Other Countries

All 2.4GHz and 5GHz Wireless Devices:

### Australia

Use of 5GHz RLAN's in Australia is restricted in the following band 5.50 – 5.65GHz.

### Chile

Este equipo cumple con la Resolución No 403 de 2008, de la Subsecretaria de telecomunicaciones, relativa a radiaciones electromagnéticas.

This device complies with the Resolution Not 403 of 2008, of the Undersecretary of telecommunications, relating to electromagnetic radiation.

Chile: (Devices with a WLAN Radio)

The device will comply with Chile's Resolution 755, part j.1) which states that the device is set to operate in the following bands for indoor use only with maximum radiated power not greater than 150mW:

2.400 hasta 2.483,5 MHz

5.150 hasta 5.250MHz

5.250 hasta 5.350MHz

5.725 hasta 5.850MHz

as well as that band 5150-5250MHz will be restricted to the indoor use and the maximum radiated power density does not exceed 7.5MW / MHz in any 1 MHz band and 0.1875mW / 25kHz in any 25kHz band.

Conforme a Resolución 755 parte j.1), se ajustará el dispositivo a operar en interiores en las siguientes bandas con una potencia máxima radiada no superior a 150mW:

2.400 hasta 2.483,5 MHz

5.150 hasta 5.250MHz

5.250 hasta 5.350MHz

5.725 hasta 5.850MHz

Además, de acuerdo con Resolución 755, para la banda 5150-5250MHz la operación del equipo estará restringida al interior de inmuebles y la densidad de potencia radiada máxima no supera 7,5mW/MHz en cualquier banda de 1MHz y 0.1875mW/25kHz en cualquier banda de 25kHz.

### **China**

通过访问以下网址可下载当地语言支持的产品说明书

[www.zebra.com/support](http://www.zebra.com/support)



### **Eurasian Customs Union**

**Евразийский Таможенный Союз**

Данный продукт соответствует требованиям знака ЕАС.



### **Hong Kong**

In accordance with HKTA1039, the band 5.15GHz - 5.35GHz is for indoor operation only.

### **Mexico**

Restrict Frequency Range to: 2.450 – 2.4835 GHz.

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.



## **S. Korea**

For a radio equipment using 2400~2483.5MHz or 5725~5825MHz, the following two expressions should be displayed:

무선설비는 운용 중 전파혼신 가능성이 있음

당해 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다.

## **Taiwan**

### **臺灣**

低功率電波輻射性電機管理辦法

### **第十二條**

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

### **第十四條**

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信規定作業之無線電通信。

低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

在5.25-5.35 赫赫頻帶內操作之無線資訊傳輸設備，限於室內使用。

### **無線接入點 (專業安裝)**

- 「本公司於說明書中提供所有必要資訊以指導使用者/安裝者正確的安裝及操作」警語。  
並於該中文使用說明書及器材上標示
- 「本器材須經專業工程人員安裝及設定，始得設置使用，且不得直接販售給一般消費者」警語。

電磁波曝露量MPE標準值  $1\text{mW}/\text{cm}^2$  ; 送測產品實測值為 :  $0.39207\text{mW}/\text{cm}^2$

本產品使用時建議應距離人體 20cm

## **Turkey**

For terminals that support Turkish characters in SMS Release 8 services, the following statement should be printed on the packages and manual of the device:

Bu cihaz Türkçe karakterlerin tamamını ihtiva eden ETSI TS 123.038 V8.0.0 (veya sonraki sürümün kodu) ve ETSI TS 123.040 V8.1.0 (veya sonraki sürümün kodu) teknik özelliklerine uygundur.

This device conforms to technical specification in ETSI TS 123.038 V8.0.0 (or the code of any subsequent release) and ETSI TS 123.040 V8.1.0 (or the code of any subsequent release) which contain all Turkish characters.

## **Thailand**

เครื่องโทรคมนาคมและอุปกรณ์นี้ มีความสอดคล้องตามข้อกำหนดของ กทช.

## **5.12 Waste Electrical and Electronic Equipment (WEEE)**



**English:** For EU Customers: All products at the end of their life must be returned to Zebra for recycling. For information on how to return product, please go to: [www.zebra.com/weee](http://www.zebra.com/weee).

**Français:** Clients de l'Union Européenne: Tous les produits en fin de cycle de vie doivent être retournés à Zebra pour recyclage. Pour de plus amples informations sur le retour de produits, consultez : [www.zebra.com/weee](http://www.zebra.com/weee).

**Español:** Para clientes en la Unión Europea: todos los productos deberán entregarse a Zebra al final de su ciclo de vida para que sean reciclados. Si desea más información sobre cómo devolver un producto, visite: [www.zebra.com/weee](http://www.zebra.com/weee).

**Български:** За клиенти от ЕС: След края на полезния им живот всички продукти трябва да се връщат на Zebra за рециклиране. За информация относно връщането на продукти, моля отидете на адрес: [www.zebra.com/weee](http://www.zebra.com/weee).

**Deutsch:** Für Kunden innerhalb der EU: Alle Produkte müssen am Ende ihrer Lebensdauer zum Recycling an Zebra zurückgesandt werden. Informationen zur Rücksendung von Produkten finden Sie unter [www.zebra.com/weee](http://www.zebra.com/weee).

**Italiano:** per i clienti dell'UE: tutti i prodotti che sono giunti al termine del rispettivo ciclo di vita devono essere restituiti a Zebra al fine di consentirne il riciclaggio. Per informazioni sulle modalità di restituzione, visitare il seguente sito Web: [www.zebra.com/weee](http://www.zebra.com/weee).

**Português:** Para clientes da UE: todos os produtos no fim de vida devem ser devolvidos à Zebra para reciclagem. Para obter informações sobre como devolver o produto, visite: [www.zebra.com/weee](http://www.zebra.com/weee).

**Nederlands:** Voor klanten in de EU: alle producten dienen aan het einde van hun levensduur naar Zebra te worden teruggezonden voor recycling. Raadpleeg [www.zebra.com/weee](http://www.zebra.com/weee) voor meer informatie over het terugzenden van producten.

**Polski:** Klienci z obszaru Unii Europejskiej: Produkty wycofane z eksploatacji należy zwrócić do firmy Zebra na celu ich utylizacji. Informacje na temat zwrotu produktów znajdują się na stronie internetowej [www.zebra.com/weee](http://www.zebra.com/weee).

**Čeština:** Pro zákazníky z EU: Všechny produkty je nutné po skončení jejich životnosti vrátit společnosti Zebra k recyklaci. Informace o způsobu vrácení produktu najdete na webové stránce: [www.zebra.com/weee](http://www.zebra.com/weee).

**Eesti:** EL klientidele: kõik tooted tuleb nende eluea lõppedes tagastada taaskasutamise eesmärgil Zebra'ile. Lisainformatsiooni saamiseks toote tagastamise kohta külastage palun aadressi: [www.zebra.com/weee](http://www.zebra.com/weee).

**Magyar:** Az EU-ban vásárlóknak: Minden tönkrement termékét a Zebra vállalathoz kell eljuttatni újrahasznosítás céljából. A termék visszajuttatásának módjával kapcsolatos tudnivalóért látogasson el a [www.zebra.com/weee](http://www.zebra.com/weee) weboldalra.

**Svenska:** För kunder inom EU: Alla produkter som uppnått sin livslängd måste returneras till Zebra för återvinning. Information om hur du returnerar produkten finns på [www.zebra.com/weee](http://www.zebra.com/weee).

**Suomi:** Asiakkaat Euroopan unionin alueella: Kaikki tuotteet on palautettava kierrätettäväksi Zebra-yhtiöön, kun tuotetta ei enää käytetä. Lisätietoja tuotteen palauttamisesta on osoitteessa [www.zebra.com/weee](http://www.zebra.com/weee).

**Dansk:** Til kunder i EU: Alle produkter skal returneres til Zebra til recirkulering, når de er udtjent. Læs oplysningerne om returnering af produkter på: [www.zebra.com/weee](http://www.zebra.com/weee).

**Ελληνικά:** Για πελάτες στην Ε.Ε.: Όλα τα προϊόντα, στο τέλος της διάρκειας ζωής τους, πρέπει να επιστρέφονται στην Zebra για ανακύκλωση. Για περισσότερες πληροφορίες σχετικά με την επιστροφή ενός προϊόντος, επισκεφθείτε τη διεύθυνση [www.zebra.com/weee](http://www.zebra.com/weee) στο Διαδίκτυο.

**Malti:** Għal klijenti fl-UE: il-prodotti kollha li jkunu waslu fl-aħħar tal-ħajja ta' l-użu tagħhom, iridu jiġu rritornati għand Zebra għar-riċiklaġġ. Għal aktar taġħrif dwar kif għandek tirritorna l-prodott, jekk jogħġbok żur: [www.zebra.com/weee](http://www.zebra.com/weee).

**Românesc:** Pentru clienții din UE: Toate produsele, la sfârșitul duratei lor de funcționare, trebuie returnate la Zebra pentru reciclare. Pentru informații despre returnarea produsului, accesați: [www.zebra.com/weee](http://www.zebra.com/weee).

**Slovenski:** Za kupce v EU: vsi izdelki se morajo po poteku življenjske dobe vrniti podjetju Zebra za reciklažo. Za informacije o vračilu izdelka obiščite: [www.zebra.com/weee](http://www.zebra.com/weee).

**Slovenčina:** Pre zákazníkov z krajín EU: Všetky výrobky musia byť po uplynutí doby ich životnosti vrátené spoločnosti Zebra na recykláciu. Bližšie informácie o vrátení výrobkov nájdete na: [www.zebra.com/weee](http://www.zebra.com/weee).

**Lietuvių:** ES vartotojams: visi gaminiai, pasibaigus jų eksploatacijos laikui, turi būti grąžinti utilizuoti į kompaniją „Zebra“. Daugiau informacijos, kaip grąžinti gaminį, rasite: [www.zebra.com/weee](http://www.zebra.com/weee).

**Latviešu:** ES klientiem: visi produkti pēc to kalpošanas mūža beigām ir jānogādā atpakaļ Zebra otrreizējai pārstrādei. Lai iegūtu informāciju par produktu nogādāšanu Zebra, lūdzu, skatiet: [www.zebra.com/weee](http://www.zebra.com/weee).

**Türkçe:** AB Müşterileri için: Kullanım süresi dolan tüm ürünler geri dönüşürme için Zebra'ya iade edilmelidir. Ürünlerin nasıl iade edileceği hakkında bilgi için lütfen şu adresi ziyaret edin: [www.zebra.com/weee](http://www.zebra.com/weee).

## 5.13 TURKISH WEEE Statement of Compliance

EEE Yönetmeliğine Uygundur

## 6 Support

If you have a problem with your equipment, contact support for your region.

Contact information is available at: [www.zebra.com/support](http://www.zebra.com/support)

When contacting support, please provide the following information:

- *Serial number of the unit*
- *Model number or product name*
- *Software type and version number*

Support responds to calls by e-mail, telephone, or fax within the time limits set forth in support agreements. If you purchased your product from a business partner, contact that business partner for support.

### **Customer Support Web Sites**

The Support site, located at [www.zebra.com/support](http://www.zebra.com/support) provides information and online assistance including developer tools, software downloads, product manuals and online repair requests.

## 7 Zebra Technologies Corporation ("Zebra") End-User Software License Agreement

BY INSTALLING AND/OR USING THIS PRODUCT, YOU ACKNOWLEDGE THAT YOU HAVE READ THIS AGREEMENT, UNDERSTAND IT AND AGREE TO BE BOUND ITS TERMS. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, ZEBRA IS NOT WILLING TO LICENSE THE PRODUCT TO YOU, AND YOU MUST NOT INSTALL OR USE THIS PRODUCT.

### *Definitions*

### *Grant of License*

Zebra Technologies Corporation ("Zebra") grants you ("Licensee" or "you") a personal, nonexclusive, nontransferable, revocable, nonassignable, limited license to use the software and documentation ("Product(s)") subject to the terms and conditions of this Agreement. You shall use the Products only for your internal business purposes, exclusively to support Zebra devices. Any use of the Products outside of the conditions set forth herein is strictly prohibited and will be deemed a breach of this Agreement resulting in immediate termination of your License. In the event of a breach of this Agreement, Zebra will be entitled to all available remedies at law or in equity (including immediate termination of the license without notice, immediate injunctive relief and repossession of all Products unless Licensee is a Federal agency of the United States Government).

You shall not distribute, sublicense, rent, loan, lease, export, re-export, resell, ship or divert or cause to be exported, re-exported, resold, shipped or diverted, directly or indirectly, the Products under this Agreement. You shall not, and shall not permit others to: (i) modify, translate, decompile, bootleg, reverse engineer, disassemble, or extract the inner workings of the Products, (ii) copy the look-and-feel or functionality of the Products; (iii) remove any proprietary notices, marks, labels, or logos from the Products; (iv) rent or transfer all or some of the Products to any other party without Zebra's prior written consent; or (v) utilize any computer software or hardware which is designed to defeat any copy protection device, should the Products be equipped with such a protection device.

Title to all copies of Products will not pass to Licensee at any time and remains vested exclusively in Zebra. All intellectual property developed, originated, or prepared by Zebra in connection with the Products remain vested exclusively in Zebra, and this Agreement does not grant to Licensee any intellectual property rights.

Portions of the Products are protected by United States patent and copyright laws, international treaty provisions, and other applicable laws. Therefore, you must treat the Products like any other copyrighted material (e.g., a book or musical recording) except that you may make one copy of the Product solely for back-up purposes. Unauthorized duplication of the Products constitutes copyright infringement, and in the United States is punishable in federal court by fine and imprisonment.

### ***Limited Warranty***

Zebra warrants for a period of ninety (90) days from your receipt of the Products to you that the Software, under normal use, will perform substantially in accordance with Zebra's published specifications for that release level of the Software. The written materials are provided "AS IS" and without warranty of any kind. Zebra's entire liability and your sole and exclusive remedy for any breach of the foregoing limited warranty will be, at Zebra's option, the provision of a downloadable patch or replacement code, or a refund of the unused portion of your bargained for contractual benefit up to the amount paid for the Products.

### ***Disclaimer***

THIS LIMITED WARRANTY IS THE ONLY WARRANTY PROVIDED BY ZEBRA, AND ZEBRA MAKES, AND YOU RECEIVE, NO OTHER WARRANTIES OF ANY KIND, WHETHER EXPRESS, IMPLIED, STATUTORY, OR IN ANY COMMUNICATION WITH YOU. ZEBRA SPECIFICALLY DISCLAIMS ANY WARRANTY INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT, OR FITNESS FOR A PARTICULAR PURPOSE. ZEBRA DOES NOT WARRANT THAT THE PRODUCTS WILL MEET YOUR REQUIREMENTS, OR THAT THE OPERATION OF THE PRODUCTS WILL BE UNINTERRUPTED OR ERROR FREE, OR THAT DEFECTS IN THE PRODUCTS WILL BE CORRECTED. ZEBRA MAKES NO WARRANTY WITH RESPECT TO THE CORRECTNESS, ACCURACY, OR RELIABILITY OF THE PRODUCTS. Some jurisdictions do not allow the exclusion of implied warranties, so the above exclusion may not apply to you.

### ***Limitation of Liability***

THE TOTAL LIABILITY OF ZEBRA UNDER THIS AGREEMENT FOR DAMAGES SHALL NOT EXCEED THE FAIR MARKET VALUE OF THE PRODUCTS LICENSED UNDER THIS AGREEMENT. IN NO EVENT WILL ZEBRA BE LIABLE IN ANY WAY FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL OR PUNITIVE DAMAGES OF ANY NATURE, INCLUDING WITHOUT LIMITATION, LOST BUSINESS PROFITS, OR LIABILITY OR INJURY TO THIRD PERSONS, WHETHER FORESEEABLE OR NOT, REGARDLESS OF WHETHER ZEBRA HAS

BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Some jurisdictions do not permit limitations of liability for incidental or consequential damages, so the above exclusions may not apply to you. This Limitation of Liability provision survives the termination of this Agreement and applies notwithstanding any contrary provision in this Agreement. Licensee must bring any action under this Agreement within one (1) year after the cause of action arises.

### ***Maintenance***

Unless provided for in a separate agreement, Zebra shall not be responsible for maintenance or field service of the Products.

### ***High Risk Activities***

The Products are not fault-tolerant and are not designed, manufactured or intended for use or resale as on-line control software in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines, or weapons systems, in which the failure of the Products could lead directly to death, personal injury, or severe physical or environmental damage ("High Risk Activities"). Zebra and its suppliers specifically disclaim any express or implied warranty of fitness for High Risk Activities, and if you elect to use the Products in any High Risk Activities, you agree to indemnify, defend, and hold Zebra harmless from and against any and all costs, damages, and losses related to that use.

### ***U.S. Government***

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## 8 AP-7602 China ROHS Compliance

部件名称 (Parts)	有害物质 					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联 苯 (PBB)	多溴二苯 醚 (PBDE)
金属部件 (Metal Parts)	0	0	0	0	0	0
电路模块 (Circuit Modules)	X	0	0	0	0	0
电缆及电缆组件 (Cables and Cable Assemblies)	0	0	0	0	0	0
塑料和聚合物部件 (Plastic and Polymeric Parts)	0	0	0	0	0	0
光学和光学组件 (Optics and Optical Components)	0	0	0	0	0	0
电池 (Batteries)	0	0	0	0	0	0

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