FXP20 POS RFID Reader

Integration Guide

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Introduction

The FXP20 POS RFID Reader (reader) is an RFID point-of-sale (POS) or on-bench reader solution. The reader provides a lightweight, small form factor solution ready for countertop installations.

Solution Overview

The FXP20 POS RFID Reader (reader) is an RFID point-of-sale (POS) or on-bench reader solution.

The reader provides a lightweight, small form factor solution ready for countertop installations. Other installation configurations can be supported by use of accessories that will facilitate other mounting arrangements (such as under-counter).

At the center of the reader is the Zebra RE40 RFID module with added features such as a USB interface for configuration and data communications, LEDs, audio (beep-buzzer), GPIO port, and SMA connectors for adding external RFID antennas. The solution accommodates countertop installations and includes an adapter plate for built-in countertop installations, a locking USB cable, and a power supply with country-appropriate adapter. External antennas are supported but not included in the packaging.

The reader supports both UHF RFID bands, 865-868MHz and 902-928MHz, and its frequency and power setting are configurable. For countries that permit frequency and power level adjustments, customers can make changes using the 123RFID tool. For countries that limit frequency and power level settings, the configuration is hardcoded in country-specific part numbers and cannot be reconfigured using the 123RFID tool. It is the responsibility of the customer to ensure that the unit operates within the proper power and frequency requirements of the location in which the unit will operate.

RE40 RFID Module Overview

The RE40 RFID module operates worldwide and will operate in both FCC-based regions (902 MHz to 928 MHz band) and the ETSI-based regions (865 to 868 MHz band).

- Radiated RF output power is limited to 2 Watt EIRP when paired with a 6 dBi gain antenna, and can be adjusted from -10 to 27 dBm.

- The transmitter has been optimized to handle the demanding requirements of dense reader modes.

- These optimizations include the use of phase reversal keying and substantial filtering to reduce out-of-band emissions to well below industry standards.

Technical Details

The FXP20 reads and writes UHF RFID tags.

- Zebra provides a JPOS driver for applications to interact with the reader.

- The 123RFID Desktop application updates the FXP20 firmware.

- The FXP has three LEDs and a buzzer for visual and audible interface with the user.

- The FXP20 has a configurable power output of -10–27 dBm.

- The FXP20 has one internal antenna and 3 external SMA antenna ports.

- The FXP will be powered by a power supply that has interchangeable plugs suitable for various power configurations.

Zebra - HW oriented + RE40 FW updated	12V	VBUS	RE40 connected	RFID started	RFID tag read	Green LED	Blue LED	Orange LED	Buzzer
No power	OFF	OFF	NO	NO	NO	OFF	OFF	OFF	OFF
Only 12v	ON	OFF	NO	NO	NO	ON (Slow)	OFF	OFF	OFF
Only VBUS	OFF	ON	NO	NO	NO	ON (Fast)	OFF	OFF	OFF
VBUS (waiting connection)	ON	ON	NO	NO	NO	ON (Fix)	OFF	OFF	OFF
Device is connected	ON	ON	YES	NO	NO	ON (Fix)	On (Slow)	OFF	OFF
Device has started its reading mode	ON	ON	YES	YES	NO	ON (Fix)	On (Fast)	OFF	OFF
Read a RFID Tag (each tag is read)	ON	ON	YES	YES	YES	ON (Fix)	On (Fast)	ON	Beep

Hardware Overview

The reader has ports and connectors, comes with an adapter plate for installation, and can also be installed with a bracket (accessory, not included) in place of the adapter plate.

External Product Dimensions and Images

This section provides the reader's dimensions.
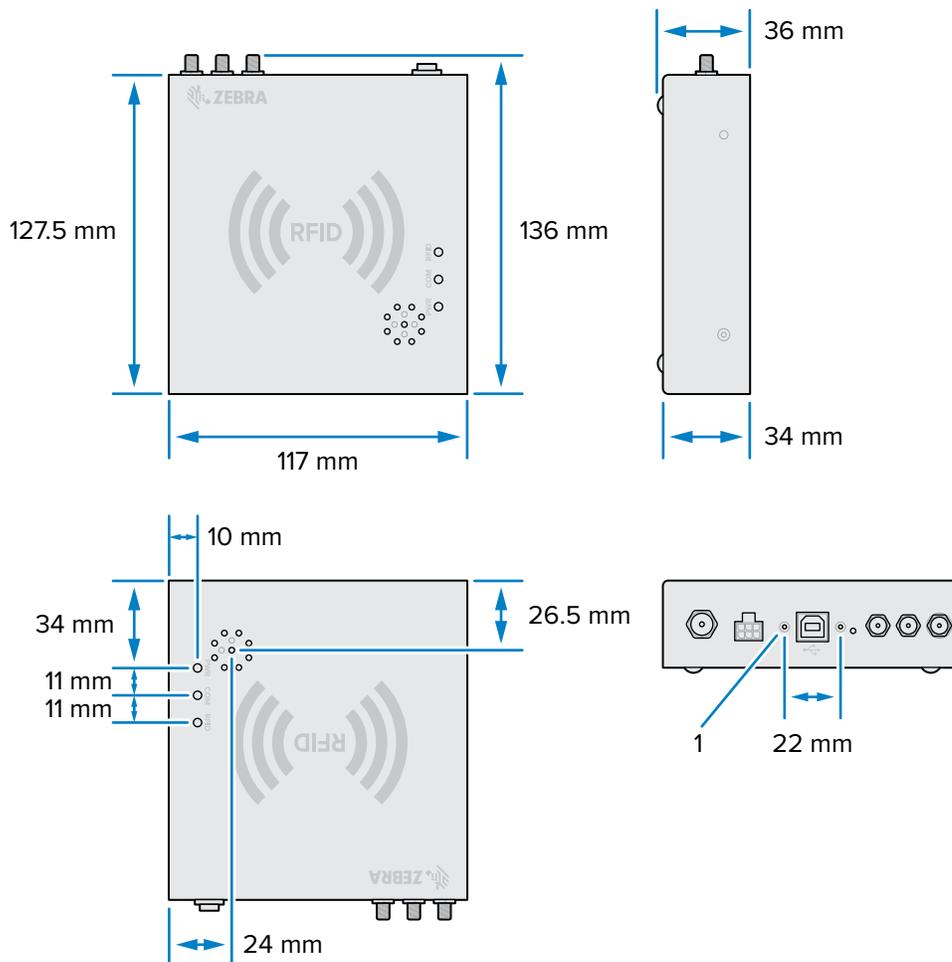
Number	Description
1	M2 insert

Device Features

This section depicts the reader's exterior functional areas, such as connectors.

**Figure 1**   FXP20 Front View Features
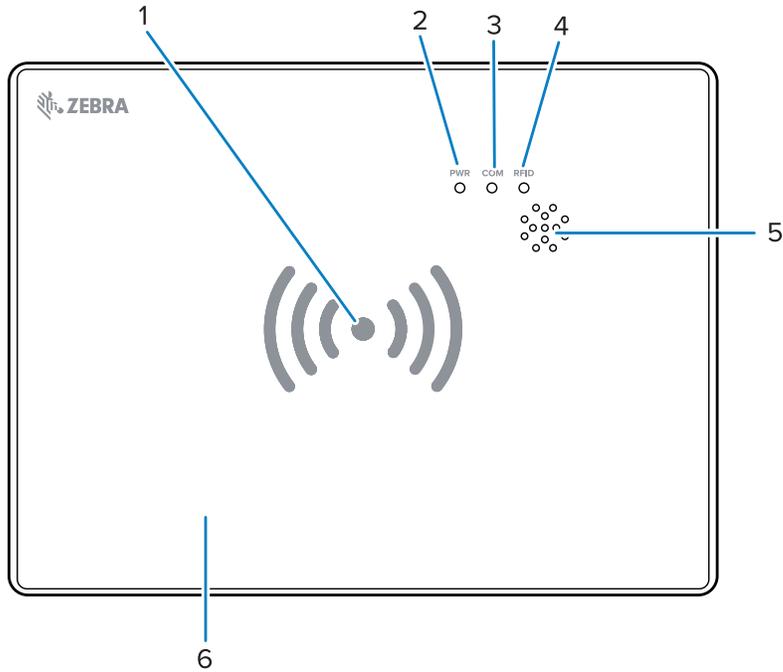
Table 1   FXP20 Front View Features

Item	Description
1	RFID reading area
2	Power LED
3	COM LED
4	RFID LED
5	Internal buzzer
6	ABS UL94V0 case

Figure 2   FXP20 Side View Features
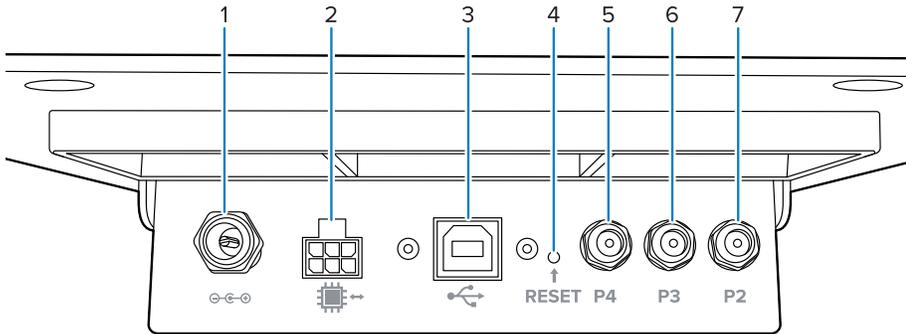
Table 2   FXP20 Side View Features

Item	Description
1	DC power connector
2	GPI connector
3	USB connector
4	Reset button
5	No connection
6	No connection
7	Port 2

Figure 3   GPI Connector Pins
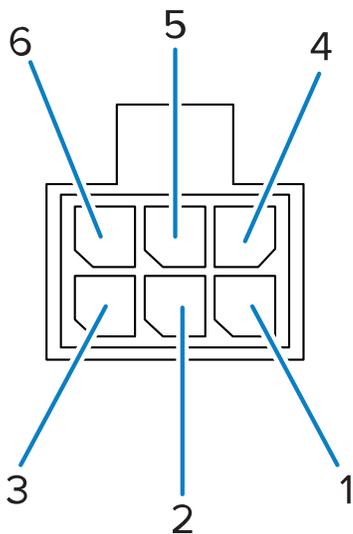
Table 3   GPI Connector Pin Description

Item	Description
1	Ground
2	No connection
3	GPI
4	No connection
5	No connection
6	12 VDC - 250 Ma

Adapter Plate

The adapter plate is used for countertop installation. The reader is a complete and independent piece of hardware. The adapter plate is packaged with the reader.
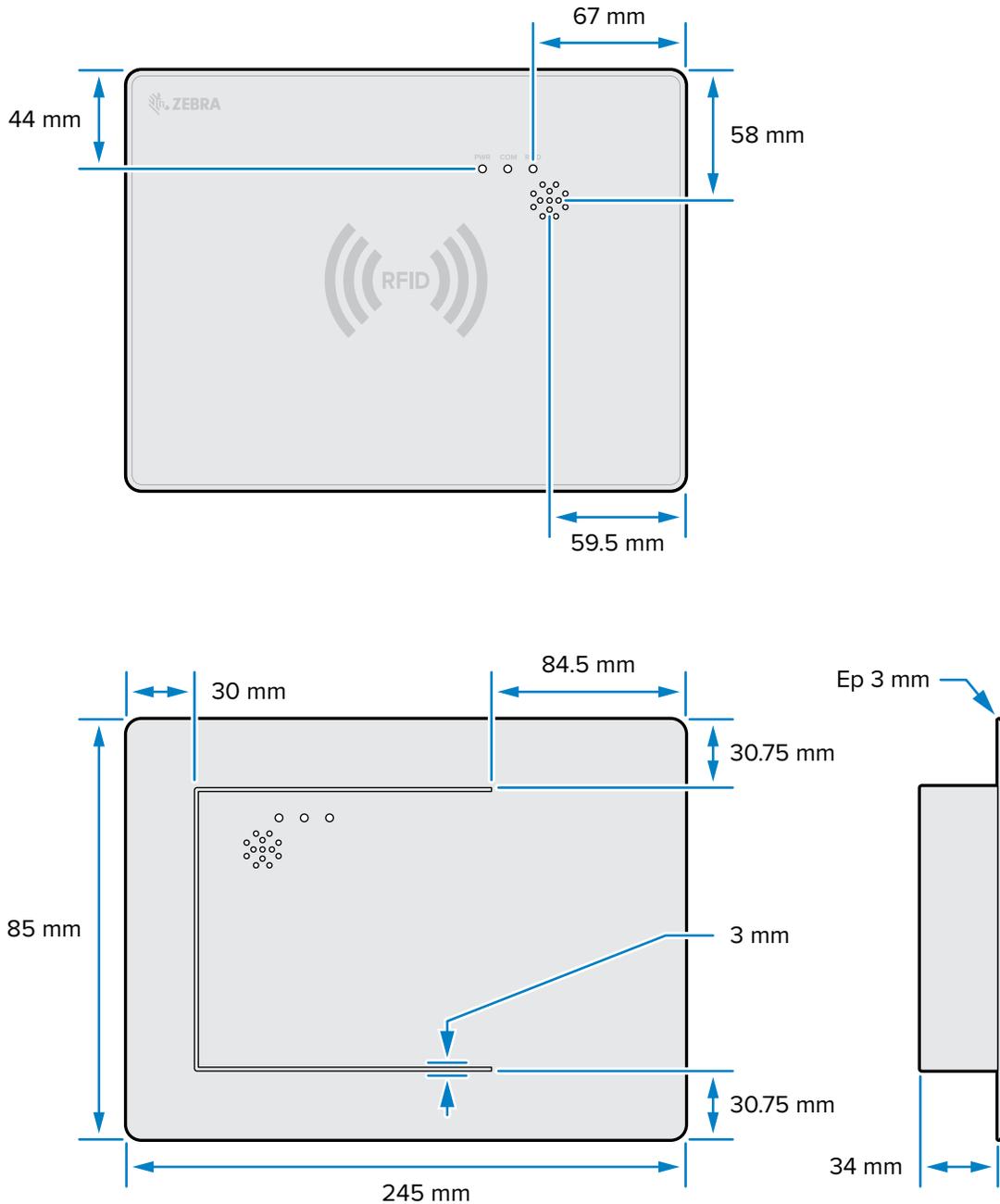
FXP20 Module

The RE40 module is the central component of the solution.

The reader will be directly applied to a PCB to be enclosed in the housing. For an image of the housing, go to FXP20 Interior. The RE40 module meets or exceeds the required tag reading capabilities described requirements above. The RE40 module is pictured with a thumbtack to represent relative size.

FXP20 Module Main Technical Characteristics

This section provides information about the main technical characteristics.

Power Supply	12VDC
Internal Antenna	1 dBiC
External antenna ports available	3 as standard
RFID ports available	Scalable from -10 to 27dBm
USB	1USB Host Type B lockable
Buzzer	4 levels
Case material	ABS UL94V0
GPI port	1-12 volts / 50 ma

FXP20 Full Specs

Go to zebra.com/fxp20 and click **Full Specifications** to see the device's technical specifications.

Power Supply

The power supply is available with a locking mechanism where it attaches to the reader. When a country-specific part number is ordered, the reader is shipped with the country-specific power supply adapters. When the part number for the rest of world is ordered, multiple adapters will be included for various power configurations.
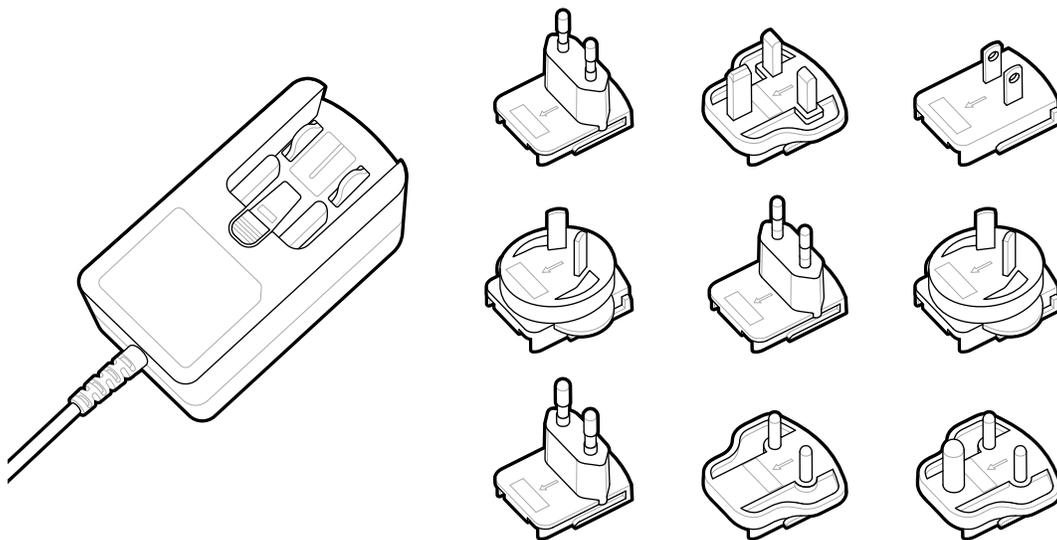
Package Contents

The FXP20 is configured, packaged, and labeled specifically for each country it is approved for. The contents of the package vary depending on the part number ordered. The contents common to every box are the FXP20, adapter plate, locking USB cable, regulatory guide, and power supply.

The product part number intended for a specific country includes the power adapter for that country. The SKU includes multiple adapters to provide connectivity for multiple power configurations.

Table 4   Package Contents by SKU

Item	WR	United States	India	Israel	Japan	Sri-Lanka	Thailand
Regulatory Guide	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FXP20	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adapter Plate	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power Supply	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adapter	Yes						
Adapter	Yes					Yes	
Adapter	Yes	Yes			Yes		Yes
Adapter	Yes			Yes			
Adapter	Yes						
Adapter	Yes		Yes				

Software Support

Zebra provides the firmware needed on the FXP20 for operation. The device will connect to the customer's infrastructure using the included locking USB cable. The FXP20 as of this writing is not network capable.

123RFID Desktop

Downloading and installing 123RFID can allow the ability to connect to the device, read tags, update software, and change other configurable settings.

Go to the [123RFID Desktop Guide](#) for details. The app allows you to:

- Configure your region/country.
- Configure antennas.
- Access read/write operations.
- Update firmware.
- Reboot the reader.

Regulatory Guide

The reader comes with the Regulatory Guide applicable to the specific part number of the reader.

Regulatory Guides are also available online. Go to zebra.com/fxp20-info.

Transferring Data to a Host Computer with 123RFID Desktop

This section describes transferring data from the FXP20 to a host device.

1. Connect the device to a host computer with a USB cable.

2. Launch 123RFID Desktop.

3. From the home screen, select **Find Readers**.

4. Select **Connect** > **Read** > **Start**.

Data from the reader transfers automatically to 123RFID.

Application Development

Use the FXP20's JPOS driver to develop applications for your business cases. Go to zebra.com/fxp20-info and select the downloads tab to access the driver and demo applications.