Rack Model 1 & 2

Installation & User Guide

ZEBRA

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Contents

Contents

List of Figures

About This Document

Introduction

The guide provides information about installing and using the Rack Model1 & 2, troubleshooting, technical and regulatory specifications.

(!) **IMPORTANT:** If you have a problem with your equipment, contact Zebra Global Customer Support for your region. Contact information is available at: zebra.com/support.

Chapter Descriptions

Topics covered in this guide are as follows:

- Getting Started provides information on warnings, recycling, installation location considerations, installing power supplies and shelving.
- Network Installation provides information on installing the network.
- PSU Installation provides information on installing the DC power supply unit.
- Technical Specifications provides information on the technical specifications for Europe and North America.
- Troubleshooting provides information on potential problems, causes, and solutions.
- Regulatory provides information on regulatory requirements.

Notational Conventions

The following conventions are used in this document:

- Bullets (•) indicate:
  - Action items
  - Lists of alternatives
  - Lists of required steps that are not necessarily sequential.
- Sequential lists (such as those that describe step-by-step procedures) appear as numbered lists.

Icon Conventions

The documentation set is designed to give the reader more visual clues. The following graphic icons are used throughout the documentation set. These icons and their associated meanings are described below.

NOTE: The text here indicates information that is supplemental for the user to know and that is not required to complete a task.

IMPORTANT: The text here indicates information that is important for the user to know.

WARNING: Warning text goes here. If danger is not avoided, the user CAN be seriously injured or killed. Confirm with your Compliance Engineer before using this.

Related Documents and Software

The following documents provide more information about Intelligent Cabinets:

- Racks 1 & 2 Shipping and Unpacking Quick Reference Guide
- Zebra Cabinet Site Installation Guide
- Zebra Cabinet Shelf Assembly Instructions
- Access Management System User Guide
- Access Management System Installation and User Instructions
- Access Management System Cabinet and Mobile Device Quick Reference Guide

For the latest version of this guide and all guides, go to zebra.com/support.

Getting Started

Introduction

The Racks are designed to allow storage and charging of up to 60 mobile devices in a convenient and semi-mobile rack. The Racks can be configured with a PPU module (not available in the US or Germany) that protects both the users and the equipment from a range of electrical faults and incidents. The Racks can also accommodate a network switch to allow for high-speed communication to the mobile devices.

NOTE: The product colors shown in this guide are used to clearly distinguish different elements only and do not reflect the actual product colors.

Figure 1   Rack Model 2 with PPU
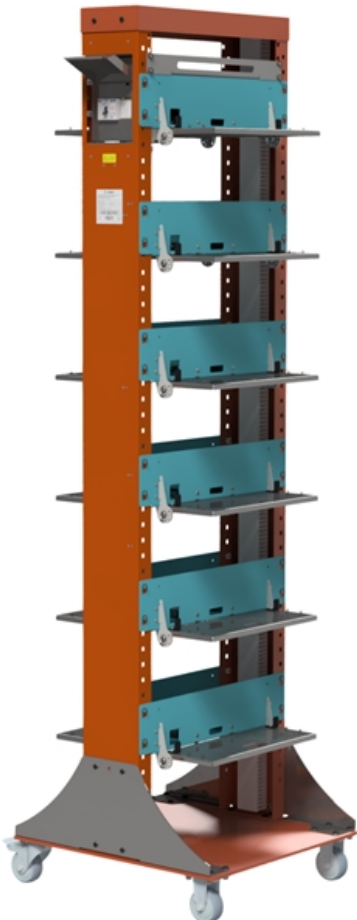
Power Protection Unit (EU Only)

The PPU can be a vital element in ensuring the health of both users and the devices stored in the Rack.

The PPU is fitted with three distinct devices, namely a Residual Current Device (RCD), a Surge Arrestor (SA) and an Inrush Current Limiter (ICL).

The RCD protects users of the Rack against electrical faults such as shorts caused by damaged cables. etc. It does this by monitoring the incoming current and comparing it against the outgoing current. Any imbalance greater than 30mA causes the RCD to "Trip" and cut the power to the Rack within 300 ms.

The Surge Arrestor is a device that quenches or dampens high voltage spikes that may be present on the incoming Mains power supply. This can include lightning strikes or electrical "noise" generated by nearby equipment such as heavy machinery. The SA includes several devices that combine to provide a comprehensive protection device. As the SA is designed to absorb unwanted energy, it is subjected to wear and tear which is displayed on the device as a change in color (see Troubleshooting on page 12 for details about maintenance schedules and activities). The display starts out as green and slowly changes to red as the internal components wear out.

The Inrush Current Limiter is designed to protect the incoming Mains supply from excessive current draw which can occur when a large number of power supplies are switched on at the same time. In the case of Rack Model 2, there could be up to thirteen power supplies. The ICL controls this by inserting a large wattage resistor into the circuit for 0.5 seconds, thereafter the resistor is bypassed using a relay. By slowing down the inrush current, this device prevents unwanted tripping of the building's electrical protection devices.

Figure 2   PPU with Flap Raised
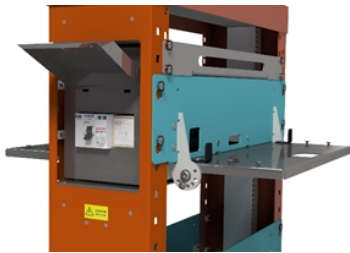
Warnings

WARNING: Strictly adhere to the following warnings:

- HIGH TOUCH CURRENT EARTH CONNECTION IS ESSENTIAL BEFORE CONNECTING SUPPLY.

- HIGH LEAKAGE CURRENT EARTH CONNECTION IS ESSENTIAL BEFORE CONNECTING SUPPLY.

- This product is class I and requires an Earth connection. The supplied Mains lead must be used or if replaced it must be of the same or higher rating and must have three conductors, Live, Neutral and Earth.

- To avoid electrical shock, do not touch the metal prongs of the plug when installing or removing the plug to or from the Mains outlet.

- Failure to properly ground this equipment can cause electrocution or serious shock, particularly when used near other metal objects such as plumbing or structural metal work such as mezzanine floor supports.

- If the power cable is worn, cut or damaged in any way it must be replaced immediately to avoid shock or fire hazard.

- Before any installation or maintenance operations, ensure that the equipment has been turned off and fully isolated. This may be achieved by switching off the Mains and then disconnecting the Mains plug from the Mains outlet.

- Check that the installed power supplies do not exceed the stated maximum rating.

- Ensure that the rack is installed inside a building. The Rack must not be installed outdoors or in a location where it is subject to weather conditions.

- The rack must be used with its operating specification, see Technical Specifications on page 11.

Recycling

All metal Rack components are 100% recyclable.

All packaging components are recyclable. The pallet and transit brackets can be retained should the rack need to be moved. They can also be returned to the factory for re-use or recycle.

Please refer to local recycling facilities for plastic and rubber components.

Installing Rack

Rack Installation Location Considerations

Identify a suitable location for Rack installation. The location must include the following criteria:

- The floor must be level and flat.

- The Rack must be within range of a suitable power outlet, typically within 2 m (6 ft).

- The Rack must not be exposed to the elements. It must be installed in a building that is protected from moisture and excessive temperatures, both high and low.

- Considerations based on the bottom of the Rack.

  - If the feet are chosen, then these must be adjusted to ensure that the rack is vertical. Use a Level to make sure that the rack is level.

  - If the wheels are chosen, then the braked wheels must be placed into their locked position. To do this, press the brake foot pedal until it clicks into place on both braked wheels.
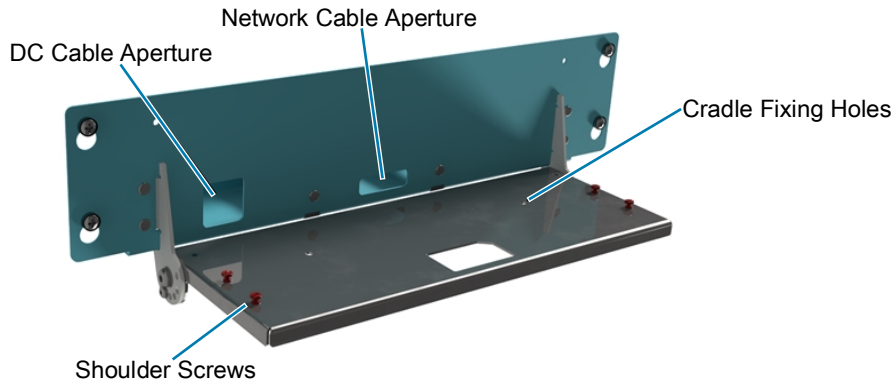
Figure 3 Brake Foot Pedal

- If neither wheels nor feet are chosen, having a flat and level floor surface is especially important.

Installing the Power Supply Units

Installing the power supply units (PSU's) can be achieved with the shelves in position.

Figure 4   Rack Shelf Parts

DC Cable Aperture
Network Cable Aperture
Cradle Fixing Holes
Shoulder Screws

For Rack Model 2, it is easier to install the shelves with one side of shelves removed to gain access to the other side, as it is a doubled sided rack.

The process of installing the PSU's can also be achieved with the shelves removed from the rack (only if the shelves are not going to be networked). See PSU Installation on page 9 for instructions.

NOTE: The shelf shown is the standard shelf using "Shoulder Screws". Information on other types of shelves are available upon request. These include shelves that will house two 2- slot cradles and four single slot cradles.

Adjusting Shelves

To adjust the shelf angle, remove the two off M5 nut and bolts from each side of the shelf pivot and adjust the shelf to the required angle. The shelf can be adjusted from horizontal down to vertical in 10° steps. Once the correct angle is achieved, replace and tighten the nut and bolts.

Removing Shelves

To remove a shelf:

1. Undo the Nyloc nut holding the earth bond wire (if the wire is present and attached to the shelf) in place on the back of each shelf. This is located on the rear of the shelf back plate on the end furthest from the power strip.

Figure 5   Earth Bond Strap
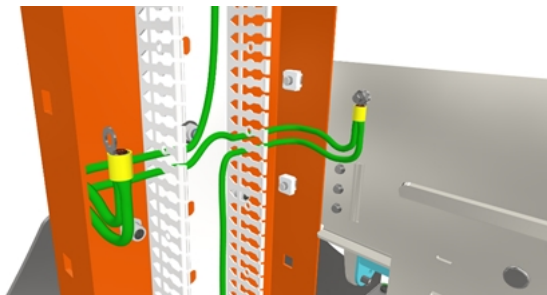
2. Remove the four large screws holding the shelf to the Rack. Repeat this process for the remaining shelves on the same side. The rack should now only have one side populated with shelves.

Network Installation

Installing the Network

If the cradles are to be networked (if not, proceed to PSU Installation on page 9), install them as follows:

1. Install the patch leads.

2. Remove the cable trunking lid and place to one side.

3. The network cable management tray is already fitted if the rack was ordered with this accessory. If not, then fit it now in either of the two 1U locations at the top of the rack. The position of this plate determines if the patch leads are managed above or below the Switch (based on preference).

   The Network Switch is not provided as part of the Rack, but the top of the Rack is designed to take any standard, 1U high, 19 in. rack mounted switch.

4. Plug the required number of patch leads into the switch and route them through the management plate beneath (or above) the switch. The management plate has several pairs of small slots, these are to allow the cables to be bunched and tied in place with cable ties.

   The patch leads usually come in units of a meter or sometimes fractions of a meter. A variety of lengths is required if every shelf is to be networked.

5. Feed the bunched cable from the management plate into the side of the trunking. If necessary, some of the tabs of the trunking can be snapped or cut off to create a larger aperture through which to feed the patch leads.

6. Taking the shortest lead first, feed it along the base of the topmost shelf (just below where the PSU is mounted and next to where the excess DC power lead is stored) and out through the Network Cable Aperture in the shelf backplate (see Figure 4 on page 7). To allow for easy installation of the cradle, a length of approximately 100 mm should protrude through the aperture. Make sure that the excess cable can easily be pushed back through the aperture once the cradle is connected.

   Continue this process working down the rack. If the Rack is a Model 2, ensure you allow for the cables that go to the shelves that have been removed. Use the patch leads already installed as a guide to how much cable to leave free for each shelf.

7. Once all patch leads are installed, replace the trunking lid making sure all of the fingers snap back into position.

PSU Installation

PSU Installation

Installing the DC Power Cable

To install the DC power cable:

1. Use the space beneath the PSU tray to store the excess cable. Allow enough cable at each end to mate with the DC output side of the PSU and the DC input socket on the cradle.

2. Use the DC Cable Aperture hole in the shelf backplate (see) to pass the DC cable through to mate with the cradle.

3. Place the PSU into the tray behind the front plate with the Mains connector nearest the power strip.

4. Connect the DC cable to the PSU ensuring the connector latches into place.

5. Plug the Mains lead into the AC input on the PSU and the other end into the power strip.

6. Repeat this process for all PSU's on one side of the rack.

7. Once the first side of the rack is complete, the incoming Mains cable can be plugged in. Using the appropriate regional specific Mains cable for the Rack's location, plug it into the power strip (the connector is approximately halfway up the power strip, near the LED indicator).

   If the Rack is fitted with a PPU (Power Protection Unit), plug the Mains cable into the free plug coming out of the PPU.

   IMPORTANT: Do **NOT** plug the other end of the Mains lead into the wall socket yet.

   Fitting the Mains cable now makes it easier to install and to work out the best path to route the cable to the wall socket.

Fitting the Cradles

To fit the cradles:

1. Begin with the topmost cradle to ensure that the shelf beneath it is clear and allows for maximum access to the underside of the shelf being worked on.

2. If the cradle is networked, plug the patch lead into the appropriate socket in the center of the cradle at the rear. Note the polarity of the connector and the click of the latch when the plug is pushed home.

3. Plug the DC cable into the socket on the left-hand side (when viewed from the front) of the cradle, again at the rear. This too is polarized and produces a click when the connector is pushed fully home.

9

NOTE: Do **NOT** force the connector, if it does not fit correctly then check the orientation and the pin configuration.

4. Once the cables are plugged in, gently position the cradle onto the shelf, fitting the large aperture of the keyhole slots over the fixed shoulder screws. Slide the cradle towards the front of the shelf until the shoulder screws come to rest at the narrow end of the keyhole slots.

5. Fix the cradles in place using two M4 mm x 12 mm screws. These should only be tightened sufficiently to grip the cradle and prevent it from moving.

IMPORTANT: Do **NOT** over-tighten the screws to prevent distorting the cradle and potentially damaging the threaded inserts.

6. Once all the cradles are in place, the Mains connector can be plugged into a wall socket and switched on.

   - If the Rack does not have a PPU fitted, the cradles should immediately be active and a device placed into any cradle slot to charge.

   - If the rack is fitted with a PPU, then it might not immediately power the cradles on. If so, check that the RCD is in the **On** position. The RCD can be found on the left-hand side of the PPU, lift the flap of the PPU to expose the three components of the PPU. Lifting the flap of the PPU is safe as the live terminals are behind the face plate. When the RCD is switched **On**, a small click sounds which is the Inrush Current Limiter switching over to direct connection from its initial current limiting connection.

   - If the cradles do not power on, see Troubleshooting on page 12.

   - If the Rack still does not work, then a qualified electrician should inspect the wall socket and electrical supply.

Technical Specifications

Table 4   Technical Specifications

Item	CS-RAC							
Destination	Europe		North America	Europe		North America	Europe	North America
Power Protection Unit	Yes	No	N/A	Yes	No	N/A	No	N/A
Part Code	CS-RAC-30-E-01	CS-RAC-30-E-00	CS-RAC-30-N-00	CS-RAC-60-E-01	CS-RAC-60-E-00	CS-RAC-60-N-00	CS-RAC-30-EN-02	CS-RAC-60-N-02
Maximum Device Capacity	30 Devices			60 Devices			30 Devices	
Dimensions H x W x D (mm)	2000 x 550 x 600						1960 x 545 x 235	
Weight (kg)	68 kg	67 kg	67 kg	87 kg	86 kg	86 kg	35 kg	35 kg
Maximum Loading Per Shelf	20 kg Evenly Distributed							
Input Voltage	220 - 240V		100 - 120V	220 - 240V		100 - 120V	220 - 240V	100 - 120V
Power Distribution	Maximum of 1 Ampere Per Output Socket Total Current Not to Exceed 7.5A/ 13A/ 10A							
Maximum Current	7.5 A	13 A	16 A	7.5 A	13 A	16 A	13 A	16 A
Operating Temp Range (^{o}C)	0°C to 30°C							
Maximum Humidity	80% None Condensing							
Maximum Altitude	< = 2000 Meters							

Troubleshooting

Table 4   Troubleshooting

Problem	Possible Cause	Possible Solution
Cradles do not have power and LEDs are not lit.	No power feed to the PSU's.	Check that the Mains plug is fully inserted into the wall socket and that the wall switch (if present) is in the **On** position.
		Check that the Mains cable is plugged into the rack correctly and that the connectors are fully mated.
		If the PPU is fitted, check if the RCD has tripped. If it has, then reset it.
	The RCD (If PPU is fitted) has tripped.	Reset the RCD. If the RCD immediately trips, then there is a significant fault. The rack must immediately be isolated from the Mains supply and the Mains lead unplugged. A qualified electrician must be engaged to carry out fault finding.
Rack moves whenever it is touched.	Wheel locks are not engaged.	Depress the wheel locking lever on the two movable wheels (see Figure 3 on page 6).
Devices impact the shelf above when removed.	Shelf is at the wrong angle.	Adjust the angle of the shelf to suit the devices fitted (see Adjusting Shelves on page 7).
No network connectivity.	Switch (if fitted) is not powered on.	Power **On** the network switch.
	No connection/activity lights on network switch (if fitted).	Check cables between switch and charging cradles.

Regulatory

This device is approved under Zebra Technologies Corporation.

This guide applies to the following model number: CS-RAC

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

Local language translation / Tradução do idioma local / Übersetzung in die locale Sprache / Raduccion de idioma local / Traduction en langue locale / Prijevod na lokalni jezik / Traduzione in lingua locale / 現地語の翻訳 / 현지 언어 번역 / Перевод на местный язык / 本地語言翻譯 / 本地语言翻译 / Yerel dil çeviri /Tłumaczenie na język lokalny : 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.

Declared maximum operating temperature: 30°C.

CE Marking and European Economic Area (EEA)

Statement of Compliance

Zebra hereby declares that this device is in compliance with Directives 2014/30/EU, 2014/35/EU and 2011/65/EU.

The full text of the EU Declaration of Conformity is available at: zebra.com/doc.

Waste Electrical and Electronic Equipment (WEEE)

For EU Customers: For products at the end of their life, please refer to recycling/disposal advice at: zebra.com/weee.

United States and Canada Regulatory
Radio Frequency Interference Notices

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Radio Frequency Interference Requirements – Canada

Innovation, Science and Economic Development Canada ICES-003 Compliance Label:
CAN ICES-No 3 (B)/NMB-3(B)

TÜRK WEEE Uyumluluk Beyanı

EEE Yönetmeliğine Uygundur.

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