Rack Model 1 and 2

Installation Guide

ZEBRA

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About This Guide

The guide provides information about installing and using Rack Model 1 and 2, troubleshooting, technical and regulatory specifications.

Notational Conventions

The following notational conventions make the content of this document easy to navigate.

- **Bold** text is used to highlight the following:
  - Dialog box, window, and screen names
  - Dropdown list and list box names
  - Checkbox and radio button names
  - Icons on a screen
  - Key names on a keypad
  - Button names on a screen
- Bullets (•) indicate:
  - Action items
  - List of alternatives
  - Lists of required steps that are not necessarily sequential
- Sequential lists (for example, 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 visual indicators are used throughout the documentation set.

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.

CAUTION: If the precaution is not heeded, the user could receive a minor or moderate injury.

WARNING: If danger is not avoided, the user CAN be seriously injured or killed.

DANGER: If danger is not avoided, the user WILL be seriously injured or killed.

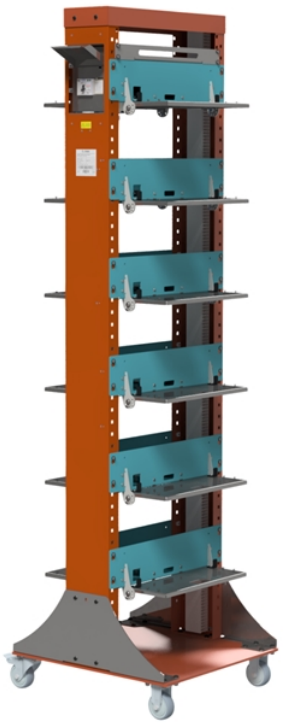
Getting Started

This section provides information on warnings, recycling, installation location considerations, installing power supplies and shelving.

The Rack is designed to store and charge up to 60 mobile devices in a convenient semi-mobile rack. It can be configured with a Power Protection Unit (PPU) module (not available in the US and Germany) that protects the users and equipment from a range of electrical faults and incidents. It can also accommodate a network switch for high-speed communication with the mobile devices.

NOTE: The colors shown in the figures in this section 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 Power Protection Unit (PPU) can be vital in ensuring the health of both users and the devices stored in the Rack.

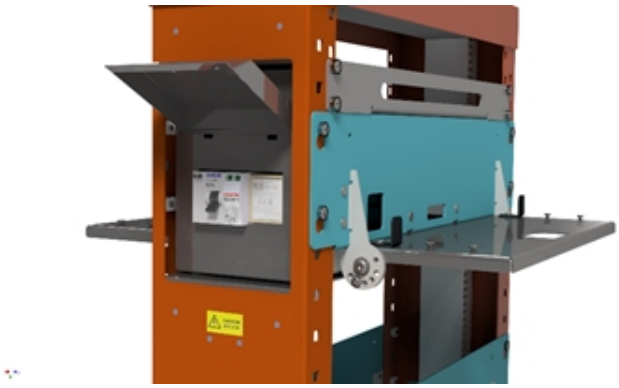
The PPU is fitted with three distinct devices, namely a Residual Current Device (RCD), a Surge Arrestor (SA) and an Inrush Current Limiter (ICL).

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

The SA 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 from nearby equipment such as heavy machinery. The SA includes several devices that combine to provide comprehensive protection. 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 16 for details about maintenance schedules and activities). The display starts as green and slowly changes to red as the internal components wear out.

The ICL 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:

- A high-touch current earth connection is essential before connecting the supply.
- A high leakage current earth connection is essential before connecting the 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 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 the equipment has been turned off and fully isolated. This may be achieved by switching off the mains and 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. It must not be installed outdoors or in a location that is subject to weather conditions.
- The Rack must be used with its operating specification, see Technical Specifications on page 15.

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 reuse or recycling.

Refer to local recycling facilities for plastic and rubber components.

Rack Installation

This section provides information on installation location considerations, installing power supplies and shelving.

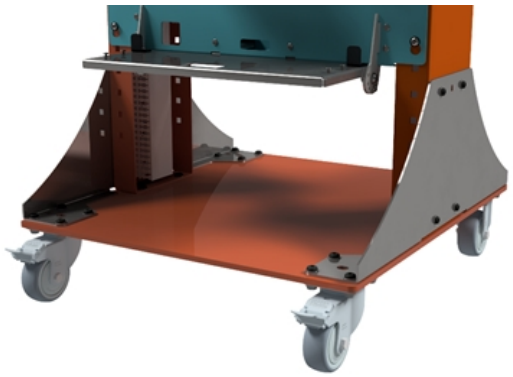
Rack Installation Location Considerations

Identify a suitable location for the 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 excessively high and low temperatures.

- Considerations based on the bottom of the Rack.
  - If the feet are chosen, then these must be adjusted to ensure the Rack is vertical. Use a spirit level to ensure the rack base plate is level in both X and Y planes.
  - If the wheels are chosen, then the brake wheels must be placed into their locked position. To do this, press the brake pedal until it clicks into place. Do this to both brake wheels.

Figure 3 Brake Foot Pedal

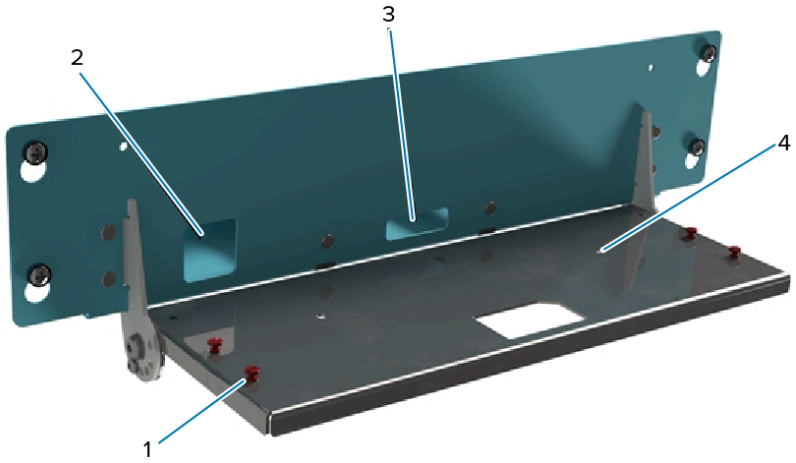


  - If neither wheels nor feet are chosen, then having a flat and level floor is important.

Installing the Power Supply Units

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

Figure 4 Rack Shelf Parts



1	Shoulder Screws
2	DC Cable Aperture
3	Network Cable Aperture
4	Cradle Fixing Holes

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

The process of installing the PSU can also be achieved with the shelves removed from the rack (only if the shelves are not going to be networked). Refer to PSU Installation on page 13 for instructions.

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

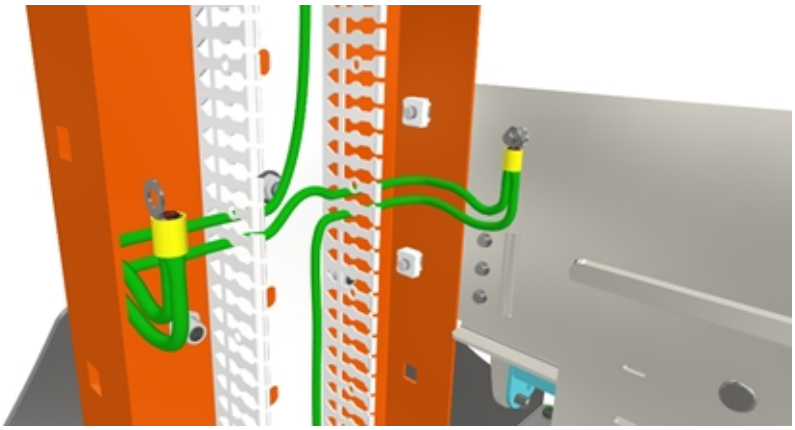
Adjusting Shelves

1. To adjust the shelf angle, remove two M5 nuts and bolts from each side of the shelf pivot and adjust the shelf to the required angle.
2. Adjust the shelf to the required angle. It can be adjusted from horizontal to vertical in 10° steps.
3. Replace and tighten the nuts and bolts after adjustment.

Removing Shelves

1. To remove a shelf, undo the Nyloc nut holding the earth bond wire in place on the back of each shelf (if the wire is present and attached to the 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

If the cradles are to be networked, install them as follows. If not, proceed to PSU Installation on page 13.

1. Install the patch leads.
2. Remove the cable trunking lid and place it to one side.
3. The network cable management tray will already be fitted if the Rack is ordered with this accessory. If not, fit it now in either of the two 1U locations at the top of the rack. The position of this plate determines whether 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 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 Rack Shelf Parts). To allow for easy cradle installation, a length of approximately 100 mm should protrude through the aperture. Ensure the excess cable can easily be pushed back through the aperture after the cradle is connected.

   Continue this process by 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. After all patch leads are installed, replace the trunking lid, making sure all of the fingers snap back into position.

PSU Installation

This section provides information on installing the DC power supply unit.

Installing the DC Power Cable

1. To install the DC power cable, 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 Rack Shelf Parts) 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 PSUs on one side of the rack.
7. After 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, 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 work out the preferred path to route the cable to the wall socket.

Fitting the Cradles

1. Begin with the topmost cradle to ensure that the shelf beneath is clear and allows 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.

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

4. After 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. 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. After 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 should be placed into any cradle slot to charge.
   - If the Rack is fitted with a PPU, it might not immediately power the cradles. 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 ICL switching over to direct connection from its initial current limiting connection.
   - If the cradles do not power on, see Troubleshooting on page 16.
   - If the Rack still does not work, then a qualified electrician should inspect the wall socket and electrical supply.

Technical Specifications

The following table details technical specifications for the Rack.

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 - 240 V		100 - 120 V	220 - 240 V		100 - 120 V	220 - 240 V	100 - 120 V
Power Distribution	Maximum of 1 Ampere Per Output Socket; Total Current Not to Exceed 7.5 A/ 13 A/ 10 A							
Maximum Current	7.5 A	13 A	16 A	7.5 A	13 A	16 A	13 A	16 A
Operating Temp Range (°C)	0°C to 30°C							
Maximum Humidity	80% None Condensing							
Maximum Altitude	< = 2000 Meters							

Troubleshooting

This section provides information on potential problems, causes, and solutions.

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, reset it.
	The RCD (If PPU is fitted) has tripped.	Reset the RCD. If the RCD immediately trips, 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.	The 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.	The 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 the switch and the charging cradles.

Regulatory Information

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: 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, 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)

Türkiye

TÜRK WEEE Uyumluluk Beyanı

EEE Yönetmeliğine Uygundur.

Warranty

For the complete Zebra hardware product warranty statement, go to zebra.com/warranty.

Service Information

Before you use the device, it must be configured to operate in your facility's network and run your applications.

If you have a problem running your device or using your equipment, contact your facility's Technical or System Support. If there is a problem with the equipment, they will contact Zebra support at zebra.com/support.

For the latest version of the guide, go to zebra.com/support.

Software Support

Zebra wants to ensure that customers have the latest entitled software at the time of device purchase to keep the device operating at peak performance levels. To confirm that your Zebra device has the latest entitled software available at the time of purchase, go to zebra.com/support.

Check for the latest software from **Support** > **Products**, or search for the device and select **Support** > **Software Downloads**.

If your device does not have the latest entitled software as of your device purchase date, email Zebra at entitlementservices@zebra.com and ensure you include the following required device information:

- Model number
- Serial number

- Proof of purchase
- Title of the software download you are requesting.

If it is determined by Zebra that your device is entitled to the latest version of software, as of the date you purchased your device, you will receive an email containing a link directing you to a Zebra website to download the appropriate software.

Product Support Information

- For information on using this product, refer to the User Guide/Product Reference Guide at zebra.com/guardian-cabinets-info.
- To find quick answers to known product behaviors, access our knowledge articles at supportcommunity.zebra.com/s/knowledge-base.
- Ask your questions in our Support community at supportcommunity.zebra.com.
- Download product manuals, drivers, software, and view how-to videos at zebra.com/support.
- To request a repair for your product, go to zebra.com/repair.

Patent Information

To view Zebra patents, go to ip.zebra.com.