cnMatrix TX2K WISP Switch
Basic Configuration Guide
Thank you for choosing the cnMatrix switch, a Cambium Networks communications device. Before you begin installing the switch, **verify** you have all the package contents available, and a PC with SSH client, such as PuTTY or OpenSSH SSH Client.

### Package Contents

Rack mount ears (2x) with screws (8x). Rack mount ears are included with the TX2020R-P and TX2028RF-P models. (Spare rack mount ears: MX-EXTXFULLA-0)

A rack mount kit for the TX2012R-P model can be ordered as an optional accessory. (MX-RACK-TX2K-0)

### cnMatrix TX2K Switch

**TX2012R-P model:**

![TX2012R-P model](image)

**TX2020R-P model:**

![TX2020R-P model](image)

**TX2028RF-P model:**

![TX2028RF-P model](image)
Product Overview

The cnMatrix TX2K switch SKU:

<table>
<thead>
<tr>
<th>Model Name / Part Number</th>
<th>Number of Ports</th>
<th>Power over Ethernet</th>
<th>Throughput</th>
<th>Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>cnMatrix TX2012R-P / MXTX2012GxPA10</td>
<td>12</td>
<td>Yes</td>
<td>104 Gbps</td>
<td><img src="image1.png" alt="Switch Image" /></td>
</tr>
<tr>
<td>cnMatrix TX2020R-P / MXTX2020GxPA10</td>
<td>20</td>
<td>Yes</td>
<td>112 Gbps</td>
<td><img src="image2.png" alt="Switch Image" /></td>
</tr>
<tr>
<td>cnMatrix TX2028RF-P / MXTX2028GFPAPA10</td>
<td>28</td>
<td>Yes</td>
<td>128 Gbps</td>
<td><img src="image3.png" alt="Switch Image" /></td>
</tr>
</tbody>
</table>

Powering Up

The cnMatrix WISP switches are powered by removable power supplies (CRPS), sold as a separate accessory. The CRPS are available in AC or DC input options. The TX2012R-P and TX2028RF-P switch models supports a single CRPS. The TX2020R-P switch supports up to two CRPS.
Install one or two CRPS units into the power supply slot in the front of the switch. If only one CRPS is used, it can be installed in either power supply slot.

Ensure that the CRPS is installed in the correct orientation. The handle will be located on the left, while the latching tab will be located on the right side of the CRPS.

Connect the power cord (separate accessory) to the CRPS power inlet, and then plug the power cord into a wall socket:

For the DC CRPS, the mating connector/cable assembly is included with the power supply. The DC cable must be connected or spliced into the on-site DC input source. The blue connector end of the cable assembly attaches to the DC CRPS.

Please purchase an approved power supply (CRPS) through an authorized dealer.
Example:
Model: ZRE-1AB0K2    Cambium p/n: MXCRPSAC1200A0
When the switch is booting up, the illuminated Cambium Networks logo will be blinking blue. When the switch is fully up and running, the illuminated Cambium Networks logo is solid blue.

**Default Configuration**

When booting up for the first time the cnMatrix TX switch will try to acquire a dynamic IP address through DHCP. If a DHCP Server is not present on the network the switch will fall back to 192.168.1.1 static IP address on the In Band ports.

Note: DHCP is enabled by default on In Band Ports (VLAN).

**Default login information:**

Username: admin  
Password: admin

**Configure Management PC**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>For Windows operating system, open the Control Panel window.</td>
</tr>
<tr>
<td>2</td>
<td>In the Control Panel window, select the View network status and tasks option. The Network and Sharing Center window is displayed.</td>
</tr>
<tr>
<td>3</td>
<td>Click the Change adapter settings option. The Network Connections window is displayed.</td>
</tr>
<tr>
<td>4</td>
<td>Double-click the interface connected to the switch. The interface Properties window is displayed.</td>
</tr>
</tbody>
</table>
The Internet Protocol Version 4 (TCP/IPv4) Properties is displayed. Select Use the following IP address. Set the IP address of the interface to 192.168.1.10 and the Subnet mask to 255.255.255.0

### Logging in to the switch

1. Use PuTTY SSH client.

2. On the PuTTY Configuration window, in the Host Name field, enter 192.168.1.1 IP address and in the Port field, enter the 22 value.

3. Click Open. The login prompt is displayed.

4. In the cnMatrix login prompt enter the default username: admin

5. In the Password prompt enter the default login password: admin
Hardware Overview

LED Color
- cnMatrix Logo (Power): LED is continuously blue – the switch is operational.
- cnMatrix Logo (Power): LED is blinking blue – the switch is initializing.

Sync LED
- Satellite lock from antenna or cnPulse: Green
- No satellite lock: Amber

cnMaestro LED
- Blinking blue: Connecting to cnMaestro
- Solid blue: Connected to cnMaestro

Antenna Port
- Used for connecting with a GPS antenna
- (Separate Accessory)

Removable power supplies (CRPS)
- CRPS (removable)

Ports
- Data ports used for traffic forwarding
- Green border ports indicate PoE+ up to 90W (802.3af/at/bt)
- Pink border ports indicate PoE+ up to 30W, or Passive 24V

cnPulse Port
- Used for connecting to a cnPulse device
- (Separate Accessory)

Specifications

<table>
<thead>
<tr>
<th>cnMatrix Models</th>
<th>TX2012R-P</th>
<th>TX2020R-P</th>
<th>TX2028RF-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTBF (hours)</td>
<td>393,648</td>
<td>250,744</td>
<td>202,977</td>
</tr>
<tr>
<td>Power Budget</td>
<td>CRPS dependent</td>
<td>CRPS dependent</td>
<td>CRPS dependent</td>
</tr>
<tr>
<td></td>
<td>See datasheet for details</td>
<td>See datasheet for details</td>
<td>See datasheet for details</td>
</tr>
<tr>
<td>Power Supply</td>
<td>CRPS (removable)</td>
<td>CRPS (removable)</td>
<td>CRPS (removable)</td>
</tr>
</tbody>
</table>
| Max PoE/Port    | Ports 1-4: 90W/port
|                 | Ports 5-8: 30W/port
| Max Total PoE Power | 480W | 960W | 960W |
| Weight          | 2.24 kg (4.94 lb) | 4.3 kg (9.48 lb) | 4.37 kg (9.63 lb) |
| Dimensions      | 26 x 4.4 x 25 cm (10.2 x 1.75 x 9.85 in) | 44 x 4.4 x 35 cm (17.3 x 1.75 x 13.78 in) | 44 x 4.4 x 35 cm (17.3 x 1.75 x 13.78 in) |
| LEDs per port   | Link/Activity, PoE | Link/Activity, PoE | Link/Activity, PoE |
| Rack mountable  | Yes, 1U | Yes, 1U | Yes, 1U |
| Operating Temperature | -10°C to +55°C (+14°F to +131°F) See datasheet for details |
|                  | See datasheet for details |
| Operating humidity | +55° at 95% RH | +55° at 95% RH | +55° at 95% RH |
| Storage temperature | -40°C to +70°C (-40°F to +158°F) |
|                  | See datasheet for details |

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@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
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**Hardware Warranty**

Cambium provides standard warranty as per Cambium's standard warranty policy for applicable warranty period for each product type. For details, regarding Cambium's warranty policy, warranty terms and conditions and applicable warranty periods, please click [https://www.cambiumnetworks.com/support/standard-warranty/](https://www.cambiumnetworks.com/support/standard-warranty/).
Electrical Safety Information

This switch is designed to be operated with a removable power supply with a power inlet with an integrated ground. A power cord from the switch shall be connected to a power outlet with ground connection.

⚡ To prevent loss of life or physical injury, observe the following safety guidelines. In no event shall Cambium Networks be liable for any injury or damage caused during the installation of the switch.

Caution: The TX2020R-P has redundant power sources. Please disconnect all the power cords before servicing.

The equipment is designed for indoor installation and not intended to be connected to exposed (outside) networks.

Equipment intended for installation in Information Technology Equipment Rooms. “Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.”

To avoid a shock hazard:

- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- Connect power cord to a properly wired and grounded electrical outlet.
- Connect to properly wired outlets any equipment that will be attached to this product.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.

There are no serviceable parts inside this equipment. Service should be provided only by a qualified service technician.

Le switch est conçu avec une prise de courant possédant une connexion à la terre. Un cordon d'alimentation devra être connecté à la prise de courant possédant une connexion à la terre.

L'équipement est prévu pour des installations en intérieur et n'est pas prévu pour être installé à l'extérieur.

ATTENTION: Unité est alimentée par des cordons d'alimentation multiples. Pour déconnecter toutes les sources d'alimentation de l'unité, débranchez tous les cordons d'alimentation

CAUTION: The SFP/SFP+ ports should use UL listed Optical Transceiver product, Rated Laser Class I. 3.3Vdc.

Si le transceiver optique n'est pas livré avec l'appareil, le manuel d'utilisation doit comporter la description ci-dessous ou son équivalent: « Ce produit est destiné à être utilisé avec un transceiver optique homologué UL,tension DC3.3V, classe laser I. 

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FCC Compliance

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.

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 A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Modifications: Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

RoHS/WEEE Compliance

Caring for the Environment: RoHS/WEEE

European Directive 2002/96/EC requires that the equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your old equipment, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

Europe- EU Declaration of Conformity

Hereby, CAMBIUM NETWORKS, Inc. declares that the equipment type [TX2020R-P] is in compliance with Directive 2014/30/EU. The full text of the EU declaration of conformity is available at the following internet address: https://www.cambiumnetworks.com/
Online Resources

User Guides: https://www.cambiumnetworks.com/guides
Technical Training: https://learning.cambiumnetworks.com
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