

## RP-EC509CP

### Ethernet 802.3bt PoE Long Reach Extender over coaxial

RP-EC509CP is a powerful Ethernet 802.3bt PoE Long Reach Extender designed for extending TCP/IP and PoE signals over coaxial cables. With BNC side support for 10BASE-T, 100BASE-TX, and 100BASE-T1 standards, this extender offers versatile compatibility. It can transmit data up to 500 meters at 100Mbps and an impressive 1,000 meters at 10Mbps, making it an ideal choice for extended network configurations.

RP-EC509CP excels in PoE support, accommodating IEEE 802.3af, 802.3at, and 802.3bt standards, delivering power to connected devices. RP-EC509CP offers flexibility in power sources, allowing for either PoE or external power adapters. With features Auto MDI/MDI-X, full and half-duplex modes, and support for EEE (Energy-Efficient Ethernet), this extender adapts to various network requirements while enhancing energy efficiency.

RP-EC509CP prioritizes network stability and protection, featuring built-in surge protection of 30KV (ESD), 40A (EFT) on the BNC side, and 30KV (ESD), 40A (EFT), and 2KA surge protection on the RJ45 side, ensuring the utmost reliability and resilience against electrical surges. RP-EC509CP is a comprehensive solution for extended PoE applications, providing robust and dependable performance.

## Features

- To send and extend TCP/IP and PoE over coaxial cable.
- BNC side support 10BASE-T, 100BASE-TX, 100BASE-T1 standard.
- Transmission distance: 500 meters at 100Mbps, 1,000 meters at 10Mbps.
- Support PoE IEEE 802.3af, 802.3at, 802.3bt
- Power source is from either PoE or external power adapter
- Support Auto MDI/MDI-X.
- Support Full duplex and half duplex mode.
- Support EEE Energy-Efficient Ethernet.
- BNC side built-in 30KV (ESD), 40A (EFT), and 30A surge protection.
- RJ45 side built-in 30KV (ESD), 40A (EFT), and 2KA surge protection.



# Specifications

<b>Standard</b>	<ul style="list-style-type: none"> <li>● IEEE 802.3 10BASE-T Ethernet</li> <li>● IEEE 802.3u 100BASE-TX Fast Ethernet</li> <li>● IEEE 802.3bw 100BASE-T1 Ethernet</li> <li>● IEEE 802.3 N-Way Auto-Negotiation</li> <li>● IEEE 802.3x Full Duplex Operation and Flow Control</li> <li>● IEEE 802.3az Energy Efficient Ethernet</li> <li>● IEEE 802.3af Power over Ethernet</li> <li>● IEEE 802.3at Power over Ethernet Plus</li> <li>● IEEE 802.3bt Power over Ethernet Plus</li> </ul>																																				
<b>Data Rate</b>	<ul style="list-style-type: none"> <li>● 10 Mbps / 100 Mbps</li> </ul>																																				
<b>RJ45 Side Distance (Max)</b>	<ul style="list-style-type: none"> <li>● 10BASE-T 250M / 100BASE-TX 130M / 100BASE-T1 300M</li> <li>● Long Distance 10Mbps 1000M / Long Distance 100Mbps 500M</li> </ul>																																				
<b>BNC Side Distance (Max)</b>	<ul style="list-style-type: none"> <li>● 10Mbps / 100Mbps 500M</li> </ul>																																				
<b>Ethernet Connector</b>	<ul style="list-style-type: none"> <li>● RJ45 x 1 (PoE)</li> </ul>																																				
<b>BNC Connector</b>	<ul style="list-style-type: none"> <li>● 75Ω x 1 (PoC)</li> </ul>																																				
<b>DC Jack (Auxiliary Power)</b>	<ul style="list-style-type: none"> <li>● 5.5mm * 2.1mm</li> </ul>																																				
<b>LED Indicators</b>	<ul style="list-style-type: none"> <li>● Power LED (Green), PoE LED(Blue)</li> <li>● Port1 (Blue), Port2 (Blue)</li> </ul>																																				
<b>DIP Switch Setting</b>	<ul style="list-style-type: none"> <li>● Auto Mode/ Default: To enable Auto-Negotiation function which will automatically sets up the link speed and transmission protocol.</li> <li>● Auto+EEE Mode: Energy-Efficient Ethernet based on Auto Mode.</li> <li>● When all DIP switches are ON, the data rate will support 100Mbps at all modes.</li> <li>● When Switch 1 is OFF and Switch 2, 3, 4 are ON, the data rate will support 10Mbps at all modes.</li> </ul> <table border="1" data-bbox="625 1509 1458 1756"> <thead> <tr> <th>SWITCH</th> <th colspan="8">SETTINGS/ FUNCTION</th> </tr> </thead> <tbody> <tr> <td>SW1</td> <td>OFF↑</td> <td rowspan="4">Auto Mode (Default)</td> <td>ON↓</td> <td>Auto</td> <td>ON↓</td> <td rowspan="4">100Mbps</td> <td>OFF↑</td> <td rowspan="4">10Mbps</td> </tr> <tr> <td>SW2</td> <td>OFF↑</td> <td>OFF↑</td> <td>Mode</td> <td>ON↓</td> <td>ON↓</td> </tr> <tr> <td>SW3</td> <td>OFF↑</td> <td>OFF↑</td> <td>with</td> <td>ON↓</td> <td>ON↓</td> </tr> <tr> <td>SW4</td> <td>OFF↑</td> <td>OFF↑</td> <td>EEE</td> <td>ON↓</td> <td>ON↓</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>● When data rate is 10Mbps at 100BASE-T1 mode, the mode will automatically switch to Long-Distance mode and data rate remains 10Mbps.</li> <li>● Port 2 (BNC port) will auto-negotiate to perfect the connection.</li> <li>● When Port 1 is connected with a networking device over 500M away or the auto-mode cannot work properly, please follow the chart below to manually set up data rates and modes.</li> </ul>	SWITCH	SETTINGS/ FUNCTION								SW1	OFF↑	Auto Mode (Default)	ON↓	Auto	ON↓	100Mbps	OFF↑	10Mbps	SW2	OFF↑	OFF↑	Mode	ON↓	ON↓	SW3	OFF↑	OFF↑	with	ON↓	ON↓	SW4	OFF↑	OFF↑	EEE	ON↓	ON↓
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<b>Auto-Negotiation Priority</b>	<ul style="list-style-type: none"> <li>Port 1 Auto-Negotiation Priority <table border="1"> <thead> <tr> <th>Priority</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>1 (Highest)</td> <td>Long Distance 100Mbps</td> </tr> <tr> <td>2</td> <td>100BASE-T1</td> </tr> <tr> <td>3</td> <td>Long Distance 10Mbps</td> </tr> <tr> <td>4</td> <td>100BASE-TX Full Duplex</td> </tr> <tr> <td>5</td> <td>100BASE-TX Half Duplex</td> </tr> <tr> <td>6</td> <td>10BASE-T Full Duplex</td> </tr> <tr> <td>7 (Lowest)</td> <td>10BASE-T Half Duplex</td> </tr> </tbody> </table> </li> </ul>	Priority	Mode	1 (Highest)	Long Distance 100Mbps	2	100BASE-T1	3	Long Distance 10Mbps	4	100BASE-TX Full Duplex	5	100BASE-TX Half Duplex	6	10BASE-T Full Duplex	7 (Lowest)	10BASE-T Half Duplex				
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<b>Power Supply</b>	<ul style="list-style-type: none"> <li>48 ~ 56V Regulated</li> </ul>																				
<b>Power Consumption</b>	<ul style="list-style-type: none"> <li>1W</li> </ul>																				
<b>Power Adapter (Optional)</b>	<ul style="list-style-type: none"> <li>DC 56V 2.1A Power Adapter (RP-EC509P/R)</li> <li>DC 56V 1.6A Power Adapter (RP-EC509P/T)</li> </ul>																				
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>67 x 135 x 27mm</li> </ul>																				
<b>Environment</b>	<ul style="list-style-type: none"> <li>Operating Temperature: 0°C~ 50°C</li> <li>Operating Humidity: 5%~95% (Non-Condensing)</li> </ul>																				
<b>Certifications</b>	<ul style="list-style-type: none"> <li>CE, FCC</li> </ul>																				

**Power and Transmission  
Distance**

Cable Types	Data Rate	Distance
RG59 (75-3)	100Mbps	300M
RG6U (75-5)	100Mbps	500M
RG59 (75-3)	10Mbps	500M
RG6U (75-5)	10Mbps	500M

- Applying RG6U coaxial cable and connecting with 56V Power Adapter:

RP-EC509CP/R Input Power	Distance	RP-EC509CP/T Output Power
110W (56V/1.96A)	100M	60W
100W (56V/1.79A)	200M	57W
86W (56V/1.54A)	300M	41W
88W (56V/1.59A)	400M	40W
61W (56V/1.09A)	500M	28W

- Applying RG59 coaxial cable and connecting with 56V Power Adapter:

RP-EC509CP/R Input Power	Distance	RP-EC509CP/T Output Power
96W (56V/2.00A)	100M	57W
74W (56V/1.33A)	200M	34W
50W (56V/0.9A)	300M	24W
39W (56V/0.7A)	400M	17W
31.8W (56V/0.57A)	500M	14W

- Applying RG6U coaxial cable and connecting with 48V Power Adapter:

RP-EC509CP/R Input Power	Distance	RP-EC509CP/T Output Power
96W (48V/2.00A)	100M	50W
95W (48V/1.98A)	200M	47W
77W (48V/1.60A)	300M	30W
72W (48V/1.50A)	400M	28W
43W (48V/0.91A)	500M	19W

- Applying RG59 coaxial cable and connecting with 48V Power Adapter

RP-EC509CP/R Input Power	Distance	RP-EC509CP/T Output Power
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96W (48V/2.00A)	100M	49W
65W (48V/x1.37A)	200M	23W
39W (48V/0.81A)	300M	16W
28W (48V/0.58A)	400M	10W
21W (48V/0.44A)	500M	8W

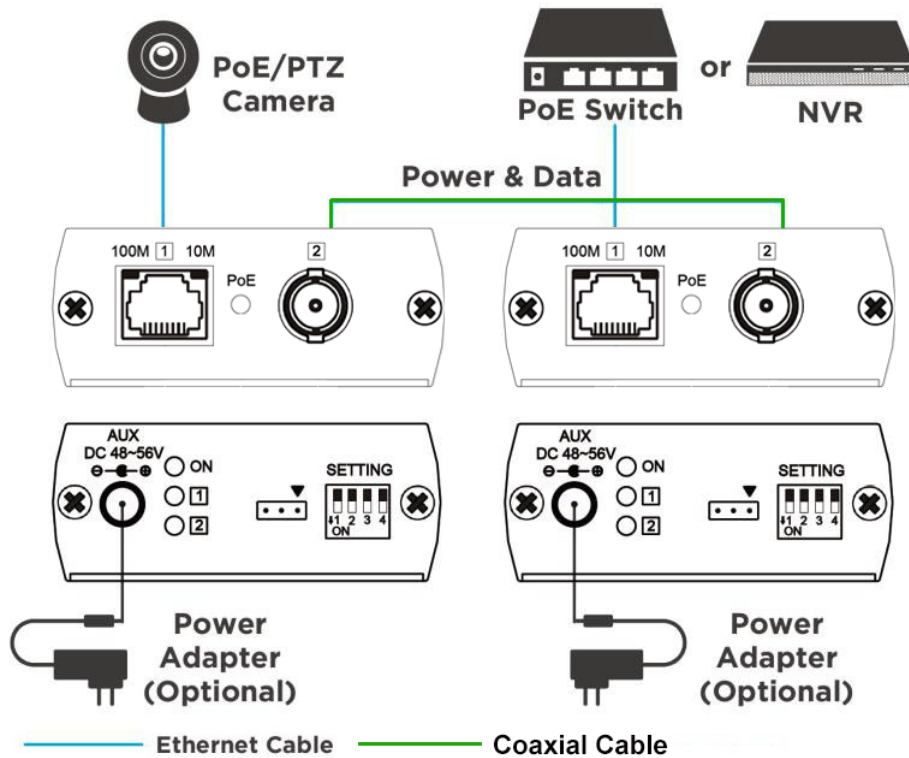
- Applying RG6U coaxial cable and connecting with 802.3at PoE Switch

Distance	RP-EC509CP/T Output Power
100M	20W
200M	20W
300M	19W
400M	17W
500M	16W

- Applying RG59 coaxial cable and connecting with 802.3at PoE Switch

Distance	RP-EC509CP/T Output Power
100M	19W
200M	17W
300M	15W
400M	13W
500M	10W
600M	8W
700M	7W
800M	4W

## Application



## Ordering information

**RP-EC509CP** Ethernet 802.3bt PoE Long Reach Extender over coaxial cable