

EASYCON Connect

# Installation Guide

## ECN-Lx

ECN-L9



### Applications

- Replace RS-485 and RS-232 cable
- Overcome the cabling limitation in tough environment
- Extend the signal transmission distance of RS232 and RS485
- Easy installation will cost down and speed up the system setup
- Avoid the fix cable being damaged by weather or wild animal in out door

ACT POWER

**EASYCON** Connect Series ECN-Lx is a wide range wireless transmission solution, it use LoRa technology to provide up to 2~15 Km transmission distance in open space. EASYCON Connect Series is your best choice to replace the fix cable, and to solve the problems, such as difficult wiring environment, signal transmission distance is not enough for the RS-232 cable, or want to prevent cable damaged in out door, etc.

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# 1 Unpacking

## ECN-Lx Installation Guide



ECN-Lx \*1 ( with antenna)



Ear \*2






2 Pole, 3.5mm \*1, 3 Pole, 3.5mm \*1, Phoenix Connector

# 2 Overview

## ECN-L9 Installation Guide

< Front >



 Power status indicator  
 Signal transmission (Tx) status indicator  
 Signal receiving (Rx) status indicator

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< Rear >

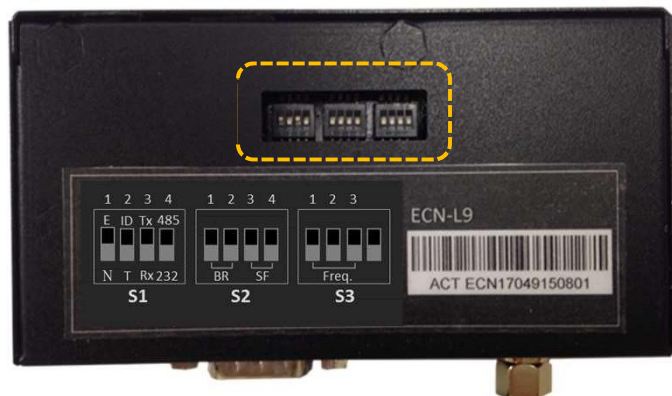


- Phoenix Connector for RS-485 cable which connect to equipment or computer
- Connect the RS-485 cable to the 3-Pole 3.5mm Phoenix Female Connector first

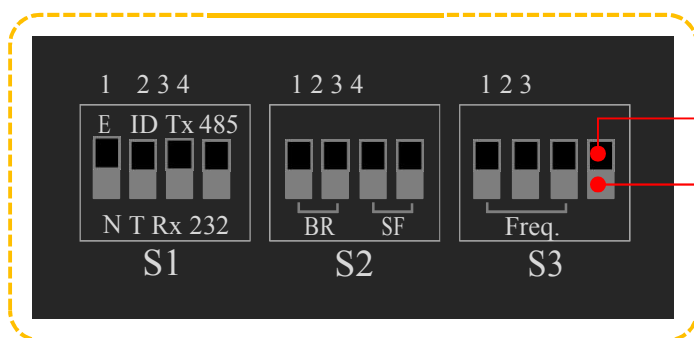


- DB-9 Connector for RS-232 cable which connect to equipment or computer
- Phoenix Connector for 12V DC power input
- Connect the power cable to the 2-Pole 3.5mm Phoenix Female Connector first





< Bottom >



- 0 • Put dipswitch to Up-Side for “0”
- 1 • Put dipswitch to Down-Side for “1”

S1-1 0 (E) Engineering Mode (Page 5 )  
1 (N) Normal Mode for normally using

S1-2 0 (ID) ID Mode ( Page 6 )  
1 ( T ) Tunnel Mode ( Page 7 )

S1-3 0 (Tx) Signal Transmission Mode  
1 (Rx) Signal Receiving Mode

S1-4 0 (485) RS-485 Mode  
1 (232) RS-232 Mode

S2-BR (1,2) Baud Rate selection

- (0,0) 9600 bps
- (0,1) 38400 bps
- (1,0) 19200 bps
- (1,1) 115200 bps

S2-SF (3,4) Spreading Factor selection

- (0,0) SF7
- (0,1) SF10
- (1,0) SF9
- (1,1) SF11

S3-Freq. (1,2,3) Frequency selection

- (0,0,0) 922.4MHz
- (1,0,0) 923 MHz
- (0,1,0) 923.6 MHz
- (1,1,0) 924.2 MHz
- (0,0,1) 924.8 MHz
- (1,0,1) 925.4 MHz
- (0,1,1) 926 MHz
- (1,1,1) 926.6 MHz

Using this mode to test the transmission data accuracy and the signal strength.

### < Dipswitch Setting > Transmitting

S1-1 0 (E)

S1-3 0 (Tx)



### < Dipswitch Setting > Receiving

S1-1 0 (E)

S1-3 1 (Rx)



1. Remove the power from both transmitting and receiving ECN-Lx devices
2. Switching S1-1 to “E”, and switching S1-3 to “Tx” on the transmitting terminal
3. Switching S1-1 to “E”, and switching S1-3 to “Rx” on the receiving terminal
4. Make sure that S2-BR、S2-SF and S3-Freq. are at the same position on both transmitting and receiving terminal
5. Plug the power connector into both transmitting and receiving ECN-Lx devices
6. Check front LED indicator on transmitting terminal, it will blink every 0.5 second to indicate transmitting the data. If not, please check Step-2
7. Check front LED indicator on receiving terminal, it will blink every 0.5 second to indicate receiving the data from transmitting terminal. If not, please check Step-3, Step-4 and Step-6
8. Connect transmitting terminal and computer with RS-232 cable, and using serial monitor tool to monitor the data transmission. Sometimes you will need to use NULL Modem (It isn't included in the shipment) to connect ECN-Lx and equipment

9. Data Format XX XX XX XX XX XX XX  
1 2 3 4 5 6 7 8

1~4 Device ID

5 Firmware Version

6 00~FF hexadecimal continuous number to check if there any data lost during transmission

7~8 Signal strength (RSSI 17~125)\*



## 4 Engineering Mode

### \* Signal Strength Calculation

#### Step-1

Convert 7~8 number from hexadecimal to Decimal (A)

#### Step-2

If  $A > 30768$ , Signal Strength =  $A - 65536$

If  $A < 30768$ , Signal Strength =  $A$

(Example 1) 7~8 = ff df

#### Step-1

ff df (hex) = 65503 (dec)

#### Step-2

$65503 > 30768$ , Signal Strength =  $65503 - 65536 = -33$

## 5 ID-Mode

When ECN-Lx is used on the client equipment that without ID number, ID-Mode can help to recognize what the signal sent from.

### < Dipswitch Setting >

S1-1	1
S1-2	0 (ID)
S1-3	1 (Rx)
S1-4	1 (232) / 0 (485)



1. Remove the power from all ECN-Lx devices
2. Switching all device dip switch S1-1 to 1, S1-2 to "ID", and S1-3 to "Rx"
3. Make sure that S2-BR、 S2-SF and S3-Freq. are at the same position on all ECN-Lx devices
4. Connect ECN-Lx to equipment with RS-232 cable\* or RS-485 cable (S1-4 switch to "485")
5. Plug the power connector into all ECN-Lx devices
6. Check front LED indicator on ECN-Lx, it will blink while transmitting or receiving the data

\* Sometimes you will need to use NULL Modem (It isn't included in the shipment) to connect ECN-Lx and equipment



If don't need to identify what the signal sent from or the client equipment with ID number included in the transmission data, then set the Dip Switch on T-Mode (Tunnel Mode).

### < Dipswitch Setting >

S1-1	1
S1-2	1 (T)
S1-3	1 (Rx)
S1-4	1 (232) / 0 (485)



1. Remove the power from all ECN-Lx devices
2. Switching all device dip switch S1-1 to 1, S1-2 to "T", and S1-3 to "Rx"
3. Make sure that S2-BR、 S2-SF and S3-Freq. are at the same position on all ECN-Lx devices
4. Connect ECN-Lx to equipment with RS-232 cable\* or RS-485 cable (S1-4 switch to "485")
5. Plug the power connector into all ECN-Lx devices
6. Check front LED indicator on ECN-Lx, it will blink while transmitting or receiving the data

\* Sometimes you will need to use NULL Modem (It isn't included in the shipment) to connect ECN-Lx and equipment

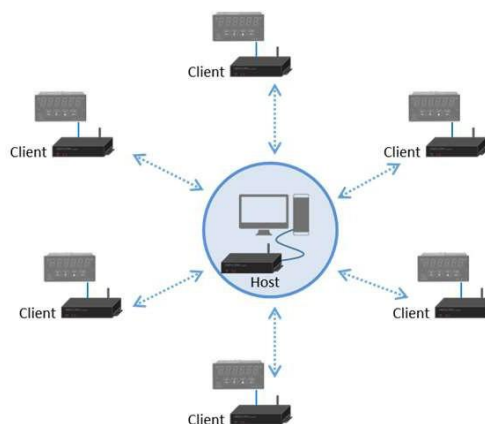




Point to Point Topology



Star Topology



**FCC Statement**

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.

To assure continued compliance, any changes or modifications not expressly approved by the party.

Responsible for compliance could void the user's authority to operate this equipment. (Example- use only shielded interface cables when connecting to computer or peripheral devices).

This equipment 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.

**FCC Radiation Exposure Statement:**

The equipment complies with FCC Radiation exposure limits set forth for uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

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