

GPIO and Ignition Sensing Guide

Introduction

GPIO port (General Purpose Input/Output) is a standard interface used to connect the Peplink router to other electronic devices with a built-in controller configured via our web admin. With this feature, you can achieve status monitoring, event notification, or perform actions such as shutting down the router with Ignition Sensing or issuing commands to external sensors.

Based on the 'HIGH' or 'LOW' logic state sensed from the GPIO pin input, the router records the GPIO event. You can monitor these events on inControl2 or receive inControl notifications. Additionally, you can use the device API to perform actions based on the GPIO event status. GPIO ports can also be configured to output signals of 'HIGH' or 'LOW' logic states to communicate with external devices.

The following setups enable ignition sensing, input sensing, and digital signal output:

1. Ignition Sensing: The router detects when the ignition is turned on or off, allowing for automated power control based on vehicle ignition status.
2. Input Sensing: The router reads external inputs and determines whether the pin settings should be 'High' (on) or 'Low' (off). This signal can serve various purposes with sensors, switches, or buttons.
3. Digital Signal Output: The router can send a digital signal 'HIGH' (on) or 'LOW' (off) to an external device.

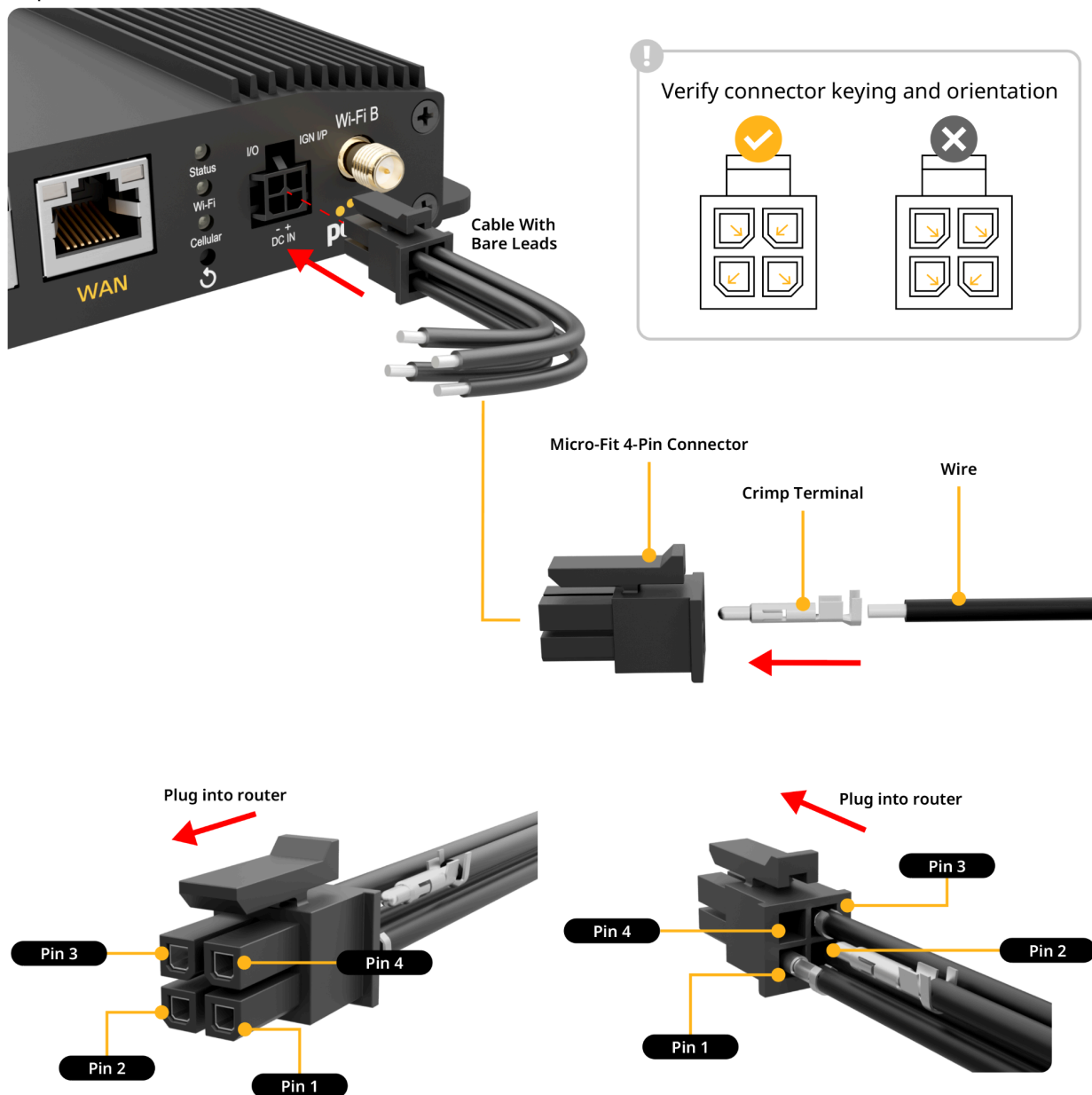
Section 1.2 elaborates on the installation method of GPIO and Ignition Sensing.

In Section 1.3, the method of configuring GPIO ports is explained based on desired configurations.

1.2 GPIO or Ignition Sensing Installation

Use a power cable with bare leads, allowing for GPIO and Ignition setup. We recommend you find a 10ft DC Power Cable (ACW-634) on estore.peplink.com.

Peplink Router with 4-Pin Mirco-Fit Socket



There are 4 wires inside the power cable, each serving a different purpose.

Pin	Function	Connection method
1	DC IN -	Connected to the permanent negative feed (ground) of the power supply.
2	DC IN +	Connected to the permanent positive feed of the power supply.
3	IGN I/P	For Input Sensing mode, connect to the external sensor or external device for sensing digital input. For Ignition Sensing mode, connect to the positive feed on the ignition.
4	I/P or I/O*	For I/P, connect to the external sensor or external device for sensing digital input. For I/O, connect to the external sensor or external device for sensing digital input or sending digital output

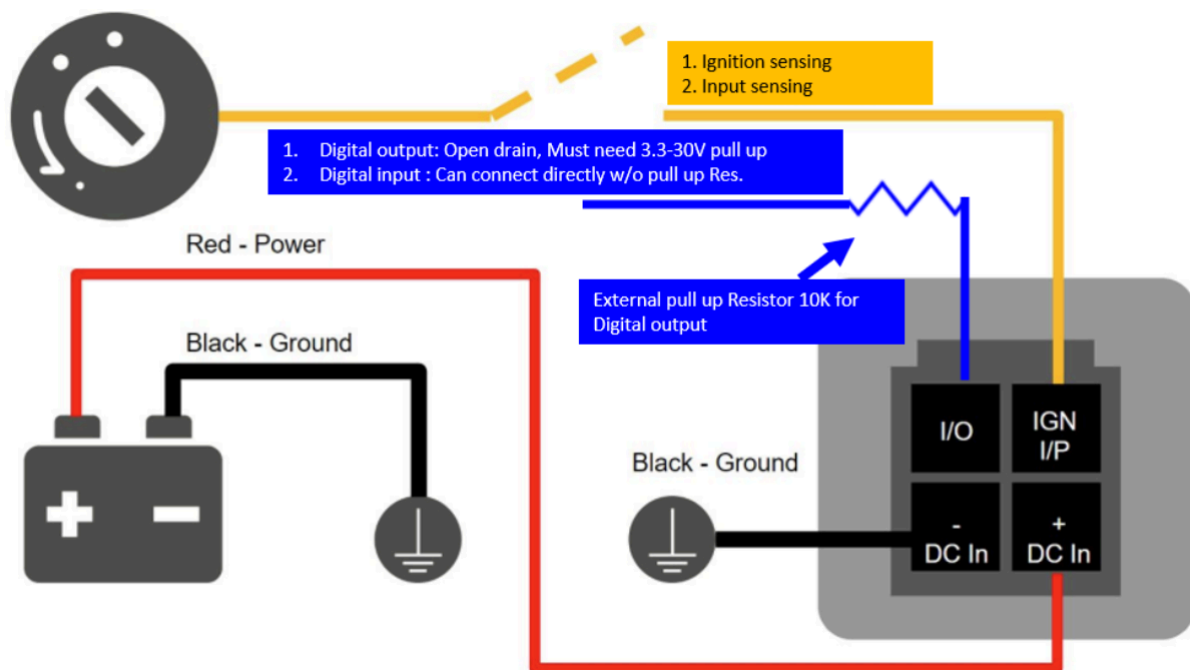
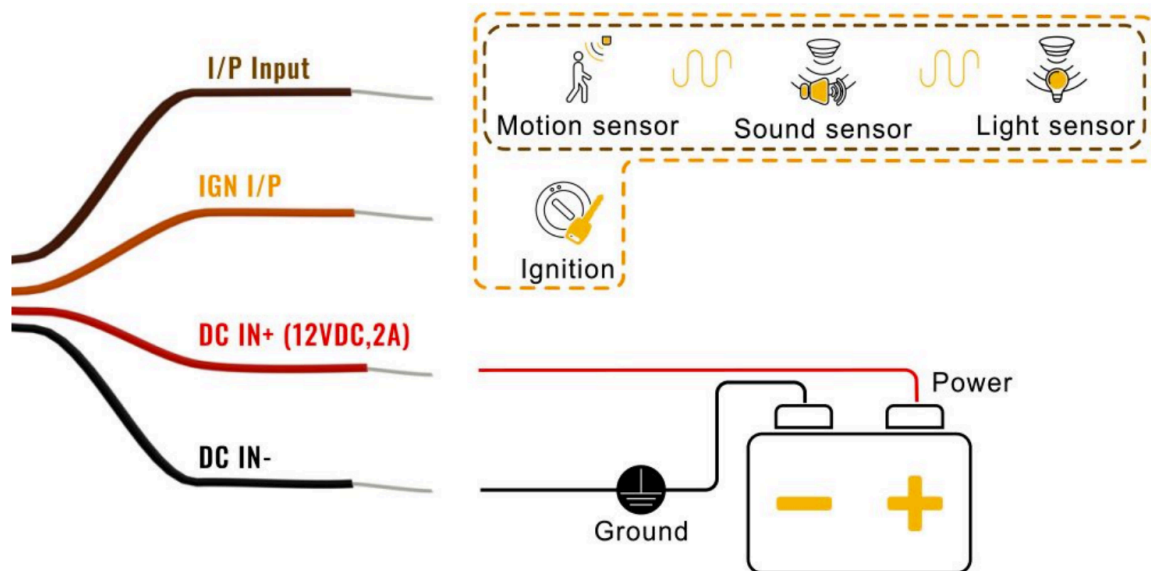
* Check the front of the router to determine whether it supports I/O or I/P.

I/O (Input/Output) Port: This port can be used to connect to external sensors or devices for both digital input and digital output. It can send or receive digital signals based on the configuration.

IGN I/P (Ignition/Input) Port: Input Sensing Mode: This mode allows the port to connect to external sensors or devices for digital input. The router reads the input signal and determines if the state should be 'High' (on) or 'Low' (off). Ignition Sensing Mode: This mode is used to detect the vehicle ignition status. It should be connected to the positive feed on the ignition.

DC IN Ports: These ports provide the necessary power supply to the device. Ensure correct polarity to avoid damage.

- **DC IN - (Negative DC Input):** Connect to the permanent negative feed, usually the ground.
- **DC IN + (Positive DC Input):** Connect to the permanent positive feed.



For the purpose of input signal sensing and ignition sensing, the circuit does not require a pull-up resistor. The pin reads 9V - 30V as active high for IGN mode. Please also note that the “LOW” threshold is 0.7V and the “HIGH” threshold is 2.2V. The entire circuit has a 30V tolerance. The pin reads 3.3V - 30V as active high and 0.05V - 0.5V as active low (mapped to 3.3V - 30V pull-up voltage).

For the purpose of sending digital output on an I/O port, the circuit should include an external pull-up resistor (10K or another appropriate value) as it is of the open-drain type. When the pin is pulled to the ground, it allows sinking of 200 mA. The maximum tolerance is 30V and it is tolerant of 250 mA. However, an external pull-up resistor of the correct value should be installed to ensure there is no floating state when the pin is not actively pulled to the ground.

The digital output state (on/off) upon rebooting the device may vary depending on the model. For Transit Pro E, it is reset to default ‘LOW’ after a hard reset. During normal bootup of the device, it resumes the previous user configuration.

1.3 GPIO and Ignition Sensing Web Admin Configuration

The Ignition Sensing, Input sensing, or digital output configurations for GPIO are available in the "Advanced" tab at the top of the Web Admin interface.



“GPIO” is located on the left under Misc. Settings.



There are two configurable GPIO pin options:

1. IGN I/P (Ignition Sensing or Input Sensing Port)
2. I/O (Input Sensing or Digital Output Port)

IGN I/P	
Enable	<input type="checkbox"/>

I/O	
Enable	<input type="checkbox"/>

1.3.1 Ignition Sensing Configuration

IGN I/P	
Enable	<input checked="" type="checkbox"/>
Type	Digital Input ▼
Mode	Ignition Sensing ▼
Delay	<input type="text"/> seconds

IGN I/P	
Enable	Checkbox to enable input
Type	Digital Input
Mode	Ignition Sensing
Delay	Determines the time in seconds the router stays powered on after the ignition is turned off.

1.3.2 Input Sensing Configuration

You can achieve Input Sensing with IGN I/P port or I/O port.

IGN I/P port

IGN I/P	
Enable	<input checked="" type="checkbox"/>
Type	Digital Input ▾
Mode	Input Sensing ▾
Delay	<input type="text"/> seconds

I/O port

I/O	
Enable	<input checked="" type="checkbox"/>
Type	Digital Input ▾
Mode	Input Sensing ▾
Delay	<input type="text"/> seconds

IGN I/P or I/O	
Enable	Checkbox to enable input
Type	Digital Input
Mode	Input Sensing
Delay	This configures delay of action in seconds upon GPIO logic state change.

1.3.3 Digital Signal Output Configuration

The router can send an output signal to an external device with the I/O port.

I/O	
Enable	<input checked="" type="checkbox"/>
Type	Digital Output ▾
Mode	WAN Status ▾

I/O									
Enable	Checkbox to enable Output								
Type	Digital Output								
Mode	<p>WAN Status: When there is a healthy WAN connection, the output pin is marked as 'High' (on). Otherwise, it will be marked as 'Low' (off),</p> <p>Toggle High: The Output pin is marked as high. Toggle Low: The Output pin is marked as low.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <table border="1"> <thead> <tr> <th colspan="2">I/O</th> </tr> </thead> <tbody> <tr> <td>Enable</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Type</td> <td>Digital Output ▾</td> </tr> <tr> <td>Mode</td> <td>WAN Status ▾</td> </tr> </tbody> </table> <div style="border: 1px solid #ccc; background-color: #f0f0f0; padding: 2px; margin-top: 2px;"> WAN Status Toggle High Toggle Low </div> </div>	I/O		Enable	<input checked="" type="checkbox"/>	Type	Digital Output ▾	Mode	WAN Status ▾
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