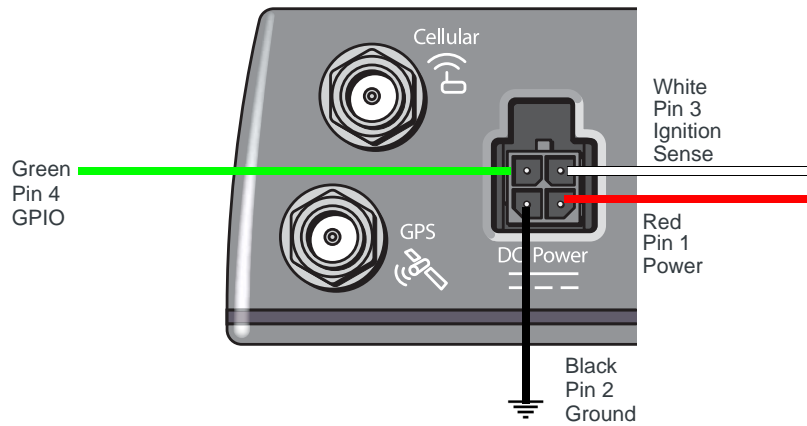


## Power Connector on the RV50



For more information, see wiring diagrams on [page 31](#).

Figure 3-4: DC Power Cable Connections (Colors indicate DC cable wire colors.)

Table 3-3: Power Connector Pin and DC Cable Wires

Pin	Name	Associated DC Cable Wire Color	Description	Type
1	Power	Red	Main power supply for device  <i>Note: If you want to turn the RV50 on/off using a control line, such as a vehicle ignition line, Sierra Wireless strongly recommends that you connect the control/ignition line to Pin 3 and apply continuous power on Pin 1.</i>	PWR
2	Ground	Black	Main device ground	PWR
3	Ignition Sense	White	Ignition Sense: Connected to the vehicle ignition or an external switch. The RV50 is off when this pin is either open-circuit or grounded, and on when this pin is connected to power.  <i>Note: If you do not connect pin 3 to the ignition, you MUST connect it to the positive terminal of your power supply or battery. If you are using a Sierra Wireless AC adapter, the connection is inside the cable.</i>	I
4	GPIO	Green	User configurable digital input/output or analog voltage sensing input. Connect to switch, relay or external device. For more information, see <a href="#">Pin 4 (GPIO)—Use the green wire for I/O configurations</a> . See <a href="#">I/O Configuration on page 33</a> . on page 33 and the ALEOS Software Configuration User Guide.	I/O

## Wiring Diagrams

### Recommended Vehicle Installation

For vehicle installations, Sierra Wireless recommends connecting the white Ignition Sense wire to the vehicle's ignition switch, as shown in the following illustration.

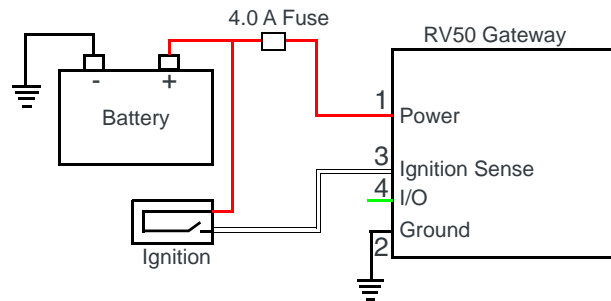


Figure 3-5: Recommended Vehicle Installation

The recommended vehicle installation allows the gateway to operate with the vehicle. When the vehicle ignition is off, the gateway is off. If desired, you can configure a delay between the time the vehicle's ignition shuts off, and the time the gateway shuts down. A delayed shutdown is especially useful if you want to maintain a network connection while the vehicle's engine is shut off for short periods, such as in a delivery vehicle.

- Pin 1 (Power)—Use the red wire in the DC cable to connect Pin 1 to the power source. Include a 4.0 A fast-acting fuse in the input power line. Sierra Wireless recommends using a continuous (unswitched) DC power source.
- Pin 2 (Ground)—Use the black wire in the DC cable to connect Pin 2 to ground. See also [Grounding the RV50 Chassis](#) on page 29.
- Pin 3 (Ignition Sense)—Sierra Wireless recommends always using the Ignition Sense wire (Pin 3) to turn the gateway off. It should not be turned off by disconnecting the power.

### Alternate Vehicle Installation

The main difference between this installation and the standard vehicle installation is that you can configure a timer to turn the gateway on at set intervals for a configured length of time, for example 20 minutes once every 24 hours when the ignition is off. Also, instead of the gateway turning on and off, the gateway alternates between on and standby mode.

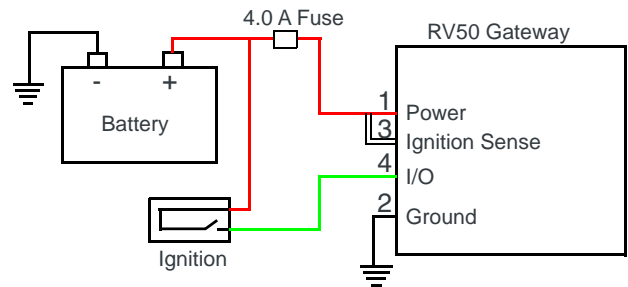


Figure 3-6: Alternate Vehicle Installation

- Pin 1 (Power)—Use the red wire in the DC cable to connect Pin 1 to the power source. Include a 4.0 A fast-acting fuse in the input power line. Sierra Wireless recommends using a continuous (unswitched) DC power source.
- Pin 2 (Ground)—Use the black wire in the DC cable to connect Pin 2 to ground. See also [Grounding the RV50 Chassis](#) on page 29.
- Pin 3 (Ignition Sense)—Connected to power
- Pin 4 (I/O)—Connected to ignition

## Fixed Installation

For fixed installations, connect the wires as shown in the figure below. You can configure Low voltage disconnect to force the gateway into Standby mode when the voltage is low.

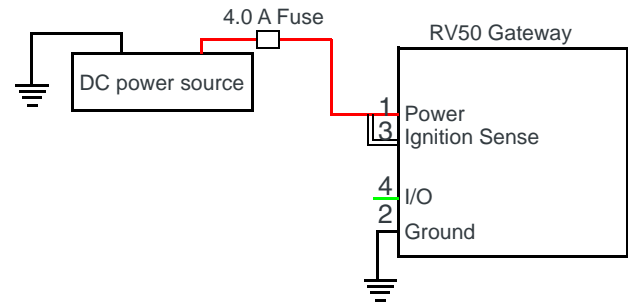


Figure 3-7: Fixed Installation without I/O

- Pin 1 (Power)—Use the red wire in the DC cable to connect Pin 1 to the power source. Include a 4.0 A fast-acting fuse in the input power line. Sierra Wireless recommends using a continuous (unswitched) DC power source.
- Pin 2 (Ground)—Use the black wire in the DC cable to connect Pin 2 to ground. See also [Grounding the RV50 Chassis](#) on page 29.
- Pin 3 (Ignition Sense)—Connected to power

## Fixed Installation with I/O Input Triggered by Standby Mode

If you have a fixed installation where you want to use the I/O to monitor an external device such as a motion detector, remote solar panel, or a remote camera, refer to [Figure 3-8](#). You can configure the I/O line to wake the gateway up for a configured length of time, and use low voltage disconnect to put the gateway in Standby mode if the voltage falls below a configured value.

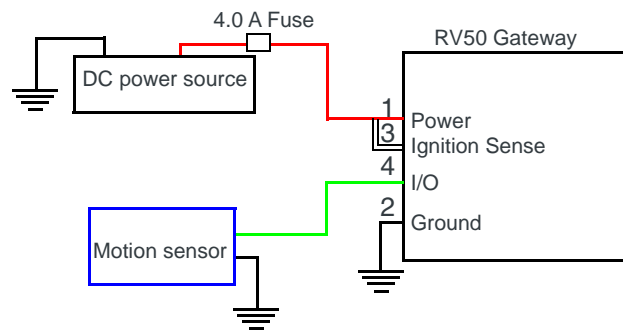


Figure 3-8: Fixed Installation with I/O

- Pin 1 (Power)—Use the red wire in the DC cable to connect Pin 1 to the power source. Include a 4.0 A fast-acting fuse in the input power line. Sierra Wireless recommends using a continuous (unswitched) DC power source.
- Pin 2 (Ground)—Use the black wire in the DC cable to connect Pin 2 to ground. See also [Grounding the RV50 Chassis](#) on page 29.
- Pin 3 (Ignition Sense)—Connected to power
- Pin 4 (GPIO)—Use the green wire for I/O configurations. See [I/O Configuration](#) on page 33.

## I/O Configuration

You can use the Pin 4 (GPIO) green wire as:

- A pulse counter  
(See [Table 3-4](#) on page 34 and [Figure 3-9](#) on page 34.)
- An digital input  
(See [Table 3-4](#) on page 34 and [Figure 3-10](#) on page 35.)
- A high side pull-up/dry contact switch input  
(See [Table 3-6](#) on page 36 and [Figure 3-11](#) on page 36.)
- An analog input  
(See [Table 3-7](#) on page 37 and [Figure 3-12](#) on page 37.)
- A low side current sink  
(See [Table 3-8](#) on page 38 and [Figure 3-13](#) on page 37.)
- A digital output/open drain  
(See [Table 3-9](#) on page 38 and [Figure 3-14](#) on page 38.)

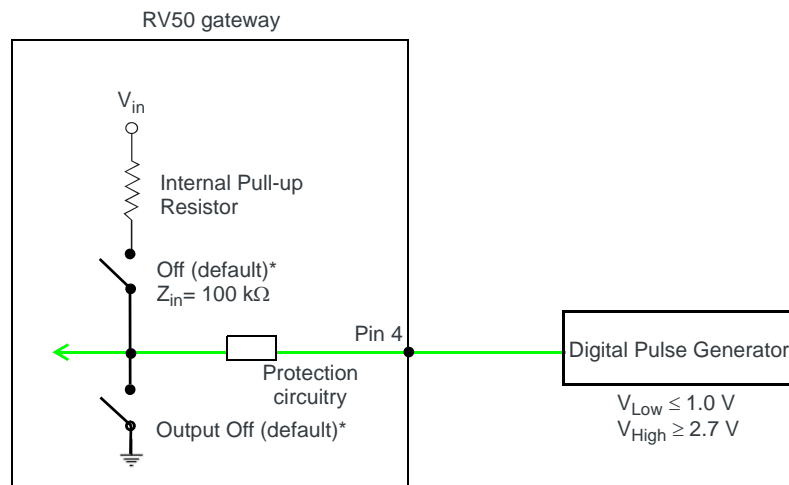
For more information, refer to the ALEOS Software Configuration User Guide.

*Note: The GPIO Pin 4 can be configured in ACEmanager or ALMS to trigger standby mode, to sink current, or to pull up the voltage. If you are using the I/O line to trigger standby mode, you cannot configure it to sink current or pull up the voltage. Likewise, if you are using the I/O line to either sink current or pull up the voltage, you cannot use it to trigger standby mode.*

You can use Pin 4 in conjunction with events reporting to configure the RV50 to send a report when the state of the monitored gateway changes, for example when a switch is opened or closed. For more information, refer to the ALEOS Software Configuration User Guide (Events Reporting chapter).

### Pulse Counter

You can use the green wire to connect Pin 4 to a pulse counter. The digital pulse counter is not available in Standby mode.



\* Configurable on the ACEmanager I/O tab

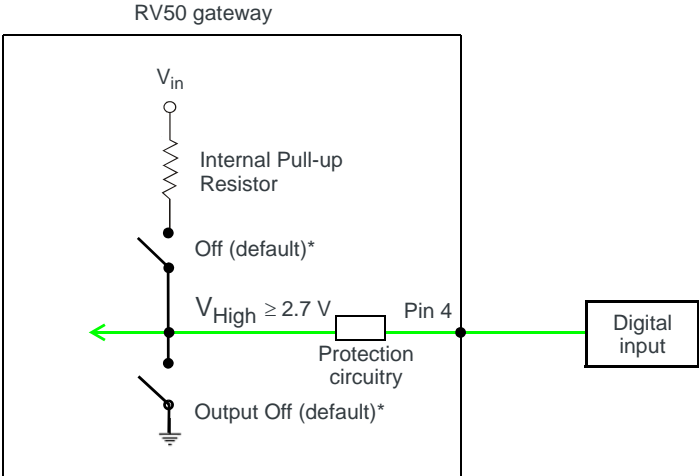
Figure 3-9: Digital Input / Pulse Counter

Table 3-4: Pulse Counter

Pull-up	State	Minimum	Typical	Maximum	Units
Off	Low	—	—	1.0	V
	High	2.7	—	V <sub>in</sub>	V

### Digital Input

You can use the green wire to connect Pin 4 to a digital input to detect the state of a switch such as a vehicle ignition, or to monitor an external device such as a motion detector, a remote solar panel, or a remote camera. Digital input can also be used with the standby timer.



\* Configurable on the ACEmanager I/O tab

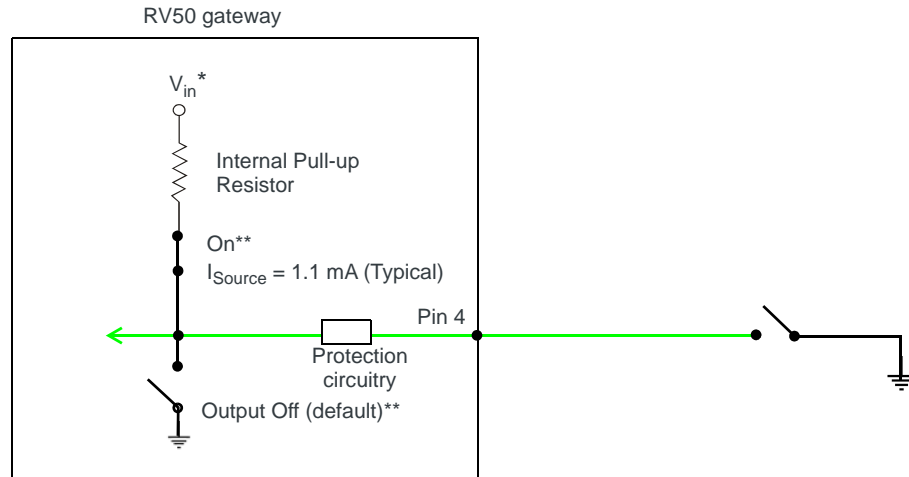
Figure 3-10: Digital Input

Table 3-5: Digital Input

Pull-up	State	Minimum	Typical	Maximum	Units
Off	Low	—	—	1.0	V
	High	2.7	—	$V_{in}$	V

## High Side Pull-up / Dry Contact Switch Input

You can use the green wire to connect Pin 4 to a dry contact switch. The dry contact switch is not available in Standby mode.



\* Depending on the load, this value can range from  $V_{in}$  to  $V_{in} - 2.5 \text{ V}$ .

\*\* Configurable on the ACEmanager I/O tab

Figure 3-11: High Side Pull-up / Dry Contact Switch Input

Table 3-6: High Side Pull-up / Dry Contact Switch Input

	Minimum	Typical	Maximum	Units	Comments
<b>Source Current</b>	0.6 $V_{in} = 7 \text{ V}$	1.1 $V_{in} = 12 \text{ V}$	3.5 $V_{in} = 36 \text{ V}$	mA	Maximum current the voltage output can provide (depends on $V_{in}$ )
<b><math>V_{out}</math></b>	$V_{in} - 2.5$	—	$V_{in}$	V	The voltage on Pin 4 when the high side pull-up is enabled (depends on $V_{in}$ and power consumption)

## Analog Input

You can use the green wire to connect Pin 4 to an analog gauge. As an analog input (voltage sensing pin), the gateway monitors voltage changes in small increments. This allows you to monitor equipment that reports status as an analog voltage.

Pin 4 detects inputs of 0.5–36 V referenced to ground. When used with a sensor to transform values into voltages, the pin can monitor measurements like temperatures, pressures or the volume of liquid in a container.

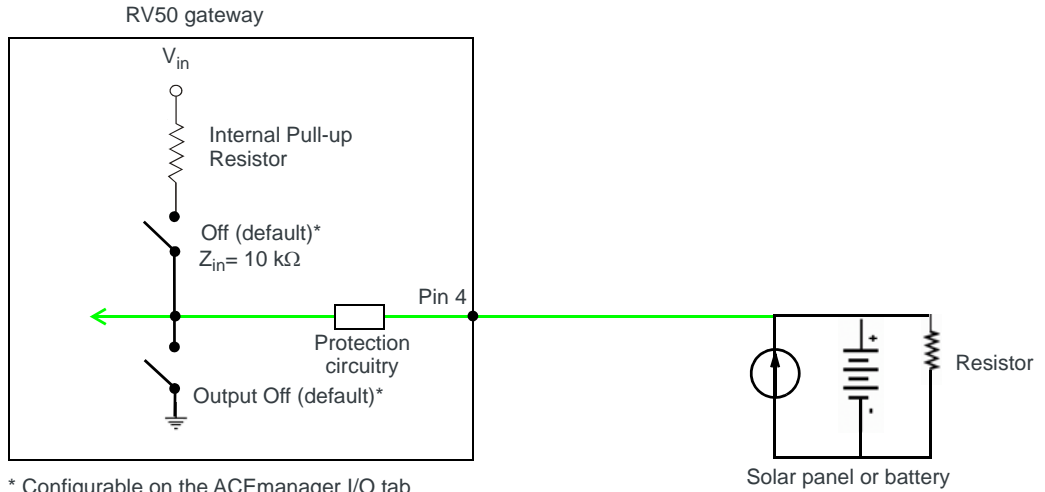


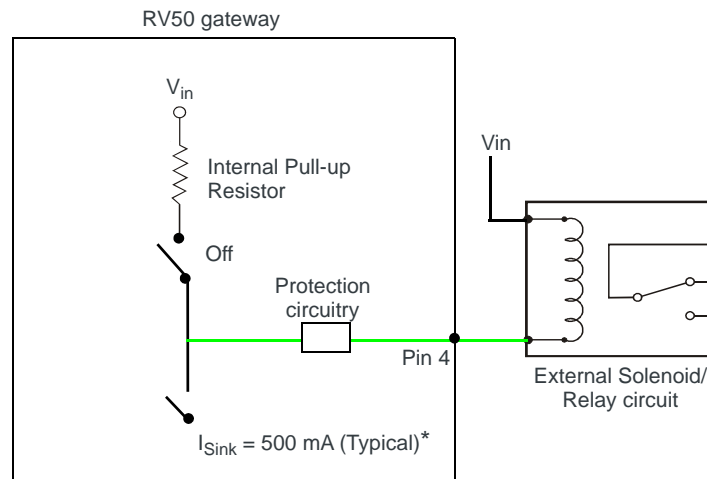
Figure 3-12: Analog Input

Table 3-7: Analog Input

Pull-up		Minimum	Typical	Maximum	Units	Comments
Off	Analog Input Range	0.5	—	36	V	—
	Analog Input Accuracy	-1.5%	0.50%	1.5%	—	—

### Low Side Current Sink Output

You can use Pin 4 as a low side current sink, for example, to drive a relay.



\* See Table 3-8 on page 38 for more details.

Figure 3-13: Low Side Current Sink



**Table 3-8: Low Side Current Sink**

Pull-up	State	Minimum	Typical	Maximum	Units	Comments
Off	On	250	500	1000	mA	I_Typical = 25°C I_Min = 70°C I_Max = -40°C
Off	Off	—	0	—	mA	Vin = 12

### Digital Output/Open Drain

You can use Pin 4 as an open drain to drive an external digital input

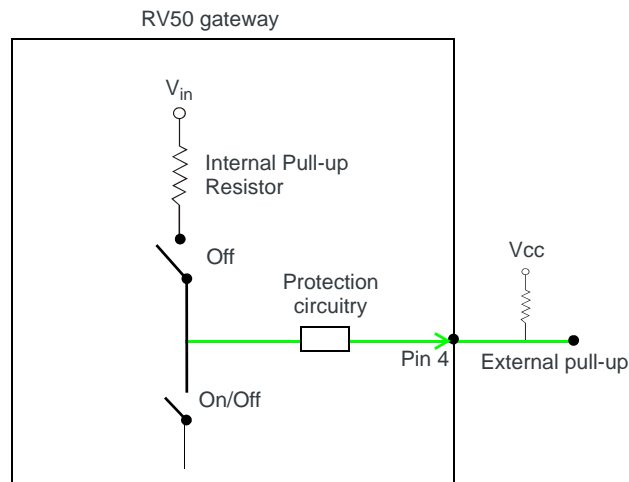


Figure 3-14: Digital Output/Open Drain

**Table 3-9: Digital Output / Open Drain**

Pull-up	State	Minimum	Typical	Maximum	Units	Comments
Off	Off	Open Circuit	—	—	—	—
	Active Low	—	—	0.5	V	5 mA, $\leq 5$ V

## Step 5—Check the gateway operation

- When power is supplied to the AirLink RV50 gateway, it powers up automatically, as indicated by the flashing LEDs. If it does not turn on, ensure that the:
  - Power connector is plugged in
  - Power connector is plugged in and supplying voltage between 7 V and 36 V
  - Ignition Sense (pin 3) is connected to the battery or power source (see [Step 4—Connect the Power](#) on page 29 for details)