PIR motion sensor, running on 3.3v

Please be positive and constructive with your questions and comments.
jtlns
Posts: 1

Joined: Tue Oct 29, 2013 4:10 pm

by **jtlns** » Tue Oct 29, 2013 4:14 pm

Hi,

I have the PIR motion sensor, it works great on my 5V Arduino Uno. But my goal is to use it on a battery powered Arduino Pro Mini, running on 3.3v. Powering the PIR sensor with only 3.3v gives very inconsistent/random output values.

I noticed the product page mentions "if you need to run it off of 3V you can do that by bypassing the regulator, but that means doing a bit of soldering". Can somebody explains how I can bypass the regulator?

Thanks!
Jan
adafruit_support_bill
Posts: 89353

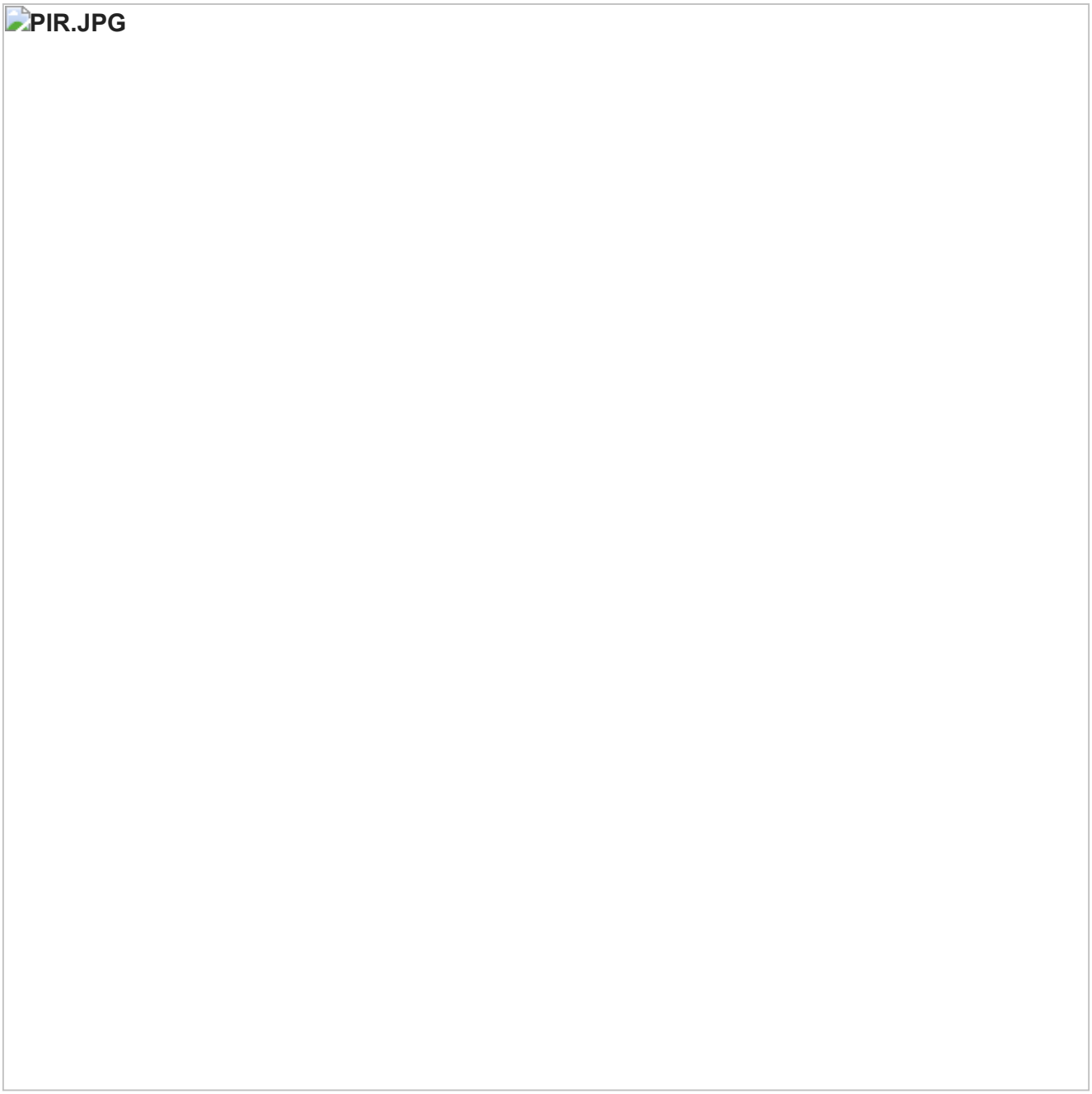
Joined: Sat Feb 07, 2009 10:11 am

Re: PIR motion sensor, running on 3.3v

by **adafruit_support_bill** » Tue Oct 29, 2013 5:06 pm

Styles vary a bit, but there should be a chip with 3-pins on one side and a tab on the other. That is a 7133-1 voltage regulator. The pin circled below is the 3.3v output. You can connect 3.3v to that to bypass the regulator.

Attachments



PIR.JPG (73.52 KiB) Viewed 3732 times

jrice0329
Posts: 2

Joined: Tue Oct 21, 2014 3:03 pm

Re: PIR motion sensor, running on 3.3v

by **jrice0329** » Tue Oct 21, 2014 3:08 pm

I tried running the PIR sensor off 3.3v by bypassing the voltage regulator to use with an Arduino Mini, but I got very inconsistent results. The motion sensor would not stop triggering. Almost all of the circuits I have found for the BISS0001 use either 4.5v or 5v. The BISS0001 datasheet claims a supply voltage of 3-5, but nobody seems to be using 3v except this place - http://www.mikroe.com/downloads/get/213 ... l_v100.pdf. Is there a reason people aren't using the BISS0001 with 3v? Thanks!

adafruit_support_bill
Posts: 89353

Joined: Sat Feb 07, 2009 10:11 am

Re: PIR motion sensor, running on 3.3v

by **adafruit_support_bill** » Tue Oct 21, 2014 3:14 pm

It could just be that the output of the on-board regulator is more stable than what is externally supplied. These devices trigger on small changes in the sensed IR levels. A noisy analog reference could easily cause false triggering.

pjhenley
Posts: 3

Joined: Wed May 18, 2016 3:43 pm

Re: PIR motion sensor, running on 3.3v

by **pjhenley** » Tue Jul 05, 2016 11:44 pm

What would happen if you shorted the input and output leads of the regulator? I don't know how the regulator would behave in this situation, but it would preserve use of the connector.

adafruit_support_bill
Posts: 89353

Joined: Sat Feb 07, 2009 10:11 am

Re: PIR motion sensor, running on 3.3v

by **adafruit_support_bill** » Wed Jul 06, 2016 5:49 am

That would probably work. But I haven't tried it. Another approach would be to remove the regulator from the board and bridge the input & output pads.

pjhenley
Posts: 3

Joined: Wed May 18, 2016 3:43 pm

Re: PIR motion sensor, running on 3.3v

by **pjhenley** » Wed Jul 06, 2016 3:32 pm

I took your suggestion and desoldered the regulator before shorting the input and output pads to bypass it. When I supply 3.3V to the board, though, I only measure 2.8V at the bypass. Is there something in the circuit that would be causing this? I get about 2.5V on the yellow output wire from the board. That's good enough to trigger an input pin on a 3V board, but I wonder if the low

voltage where the regulator used to be could be causing some false alarms. (If that's not it, it's wifi interference from the BlynkBoard.) Do you have a schematic for the newer version of the PIR sensor?

adafruit_support_bill
Posts: 89353
Joined: Sat Feb 07, 2009 10:11 am

Re: PIR motion sensor, running on 3.3v

by **adafruit_support_bill** » Wed Jul 06, 2016 4:03 pm

We do not have a schematic for these sensors. We do not manufacture them in house. The voltage drop sounds like it could be from a reverse-voltage protection diode in series with the power connection..

We have found that these sensors are prone to false triggering when in proximity to other WiFi boards. Try to keep them separated if possible. Otherwise, try to ignore PIR events that occur while transmitting.

pjhenley
Posts: 3
Joined: Wed May 18, 2016 3:43 pm

Re: PIR motion sensor, running on 3.3v

by **pjhenley** » Sat Jul 09, 2016 3:07 pm

Thanks for the hint about the reverse voltage protection. I removed the diode and bridged across its pads, and now the sensor is much more stable. I used to get very periodic triggers, about every 8 seconds or so, but now they're gone. It looks like the chip just couldn't function with 2.8V.

adafruit_support_bill
Posts: 89353
Joined: Sat Feb 07, 2009 10:11 am

Re: PIR motion sensor, running on 3.3v

by **adafruit_support_bill** » Sat Jul 09, 2016 3:09 pm

That's good to know. Thanks for the follow-up.

Locked

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