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> How to read DS3231 Internal temperature sensor, example code_(<https://forum.arduino.cc/index.php?topic=262986.0>)

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Pages: <https://forum.arduino.cc/index.php?topic=262986.0> 1(<https://forum.arduino.cc/index.php?topic=262986.0>) [2]

Topic: How to read DS3231 Internal temperature sensor, example code (Read 20587 times)

[Prev](#) [next=Prev#New](#)) - [Next Topic](#) (https://forum.arduino.cc/index.php?topic=262986.0;Prev_next=Next#New)

casemod
(<https://forum.arduino.cc/index.php?action=profile;u=241604>)



(<https://forum.arduino.cc/index.php?action=profile;u=241604>)



God Member

Posts: 973

Karma: 151 [[add](#)]

(<https://forum.arduino.cc/index.php?action=karma;sa=applaud;uid=241604;f586264=07b3d8374cfd6f646a9fe5c4ae1572f4>)

casemod
(<https://forum.arduino.cc/index.php?action=profile;u=241604>)

Re: How to read DS3231 Internal temperature sensor, example code
(<https://forum.arduino.cc/index.php?topic=262986.msg1855404#msg1855404>)

Aug 25, 2014, 09:34 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855404#msg1855404>) Last Edit: **#15**

Aug 25, 2014, 10:18 pm by casemod Reason: 1

Quote from: Jack Christensen on Aug 25, 2014, 09:13 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855384#msg1855384>)

“

My gripe was with the blog item. The author (I assume that wasn't you? 🙄 😊) seems to conclude that the two temperature sensors have comparable accuracy, which is what I take exception with. OTOH, if the DS3231 sensor is a good match for a particular application, then by all means use it!

I understand, just to make clear that by quoting you I was not saying you were wrong or anything.

[Wrong content removed] - DS18B20 is 1 wire not I2C

Re: How to read DS3231 Internal temperature sensor, example code
(<https://forum.arduino.cc/index.php?topic=262986.msg1855419#msg1855419>)

Aug 25, 2014, 09:43 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855419#msg1855419>) Last Edit: **#16**

Aug 25, 2014, 09:47 pm by casemod Reason: 1



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Quote from: [cattledog](#) on Aug 25, 2014, 09:26 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855394#msg1855394>)

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Here is some quick code to display the temperature with no floats. I leave it to you to figure out how to handle the below zero values of temperature. If you do see them, I'm not sure I would be sitting at your desk. 🙄

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Code: [\[Select\]](#)

```
#include <Wire.h>
#define DS3231_I2C_ADDR          0x68
#define DS3231_TEMPERATURE_MSB  0x11
#define DS3231_TEMPERATURE_LSB  0x12

byte temp_msb;
byte temp_lsb;

void setup()
{
  Serial.begin(9600);
  Wire.begin();
}

void loop()
{
  temp_msb = DS3231_get_MSB();
  temp_lsb = DS3231_get_LSB();

  Serial.print(temp_msb);

  switch(temp_lsb){
    case 0:
      Serial.println(".00");
      break;
    case 1 :
      Serial.println(".25");
      break;
    case 2:
      Serial.println(".50");
      break;
    case 3:
      Serial.println(".75");
      break;
  }

  delay(2000);
}

byte DS3231_get_MSB(){
  Wire.beginTransmission(DS3231_I2C_ADDR);
  Wire.write(DS3231_TEMPERATURE_MSB);
  Wire.endTransmission();

  Wire.requestFrom(DS3231_I2C_ADDR, 1);
  temp_msb = Wire.read();
}

byte DS3231_get_LSB(){
```

(<https://forum.arduino.cc>)

```
Wire.beginTransmission(DS3231_I2C_ADDR);
Wire.write(DS3231_TEMPERATURE_LSB);
Wire.endTransmission();

Wire.requestFrom(DS3231_I2C_ADDR, 1);
int temp = Wire.read();
Serial.print( "Temp: " );
Serial.print( temp );
Serial.print( " \r\n" );
}

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```

You used two functions as I was thinking, thanks for clarifying!

About negative values, what exactly happens? I know I cant read them, but havent found out the reason why, just a specification "wrong values displayed".

Does it go "negative binary"?

JChristensen
(<https://forum.arduino.cc/index.php?action=profile;u=35906>)



(<https://forum.arduino.cc/index.php?action=profile;u=35906>)



Faraday Member


Posts: 4,208

(<http://adventuresinarduinoand.blogspot.com/>)

Karma: 254 [add]

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CODE is a mass noun and should not be used in the plural or with an indefinite article.

 **Re: How to read DS3231 Internal temperature sensor, example code**
(<https://forum.arduino.cc/index.php?topic=262986.msg1855439#msg1855439>)
Aug 25, 2014, 09:55 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855439#msg1855439>) Last Edit: #17
Aug 25, 2014, 10:16 pm by Jack Christensen Reason: 1

This will handle temperatures below zero:

Code: [Select]

```
const int DS3231_RTC_ADDR = 0x68;
const int DS3231_TEMP_MSB = 0x11;
union int16_byte {
    int i;
    byte b[2];
} rtcTemp;

Wire.beginTransmission(DS3231_RTC_ADDR);
Wire.write(DS3231_TEMP_MSB);
Wire.endTransmission();
Wire.requestFrom(DS3231_RTC_ADDR, 2);
rtcTemp.b[1] = Wire.read();
rtcTemp.b[0] = Wire.read();
long tempC100 = (rtcTemp.i >> 6) * 25;    //degrees celsius times 100
Serial.print( tempC100 / 100 );
Serial.print( '.' );
Serial.println( abs(tempC100 % 100) );
```

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JChristensen
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(<https://forum.arduino.cc/index.php?action=profile;u=241604>)

 **Re: How to read DS3231 Internal temperature sensor, example code**
(<https://forum.arduino.cc/index.php?topic=262986.msg1855442#msg1855442>)
Aug 25, 2014, 09:57 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855442#msg1855442>)


#18

Quote from: casemod on Aug 25, 2014, 09:43 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855419#msg1855419>)

“

Does it go "negative binary"?

See http://en.wikipedia.org/wiki/Two%27s_complement

 **Re: How to read DS3231 Internal temperature sensor, example code**
(<https://forum.arduino.cc/index.php?topic=262986.msg1855473#msg1855473>)
Aug 25, 2014, 10:13 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855473#msg1855473>)

#19

Quote from: Jack Christensen on Aug 25, 2014, 09:57 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855442#msg1855442>)

(<https://forum.arduino.cc/>)



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God Member

Posts: 973

Karma: 151 [add]

(<https://forum.arduino.cc/index.php?action=karma;sa=applaud;uid=241604;f586264=07b3d8374cfd6f646a9fe5c4ae1572f4>)

trik125

(<https://forum.arduino.cc/index.php?action=profile;u=342249>)



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Newbie

Posts: 13

Karma: 8 [add]

(<https://forum.arduino.cc/index.php?action=karma;sa=applaud;uid=342249;f586264=07b3d8374cfd6f646a9fe5c4ae1572f4>)

“

Quote from: casemod on Aug 25, 2014, 09:43 pm (<https://forum.arduino.cc/index.php?topic=262986.msg1855419#msg1855419>).

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Does it go "negative binary"?

See http://en.wikipedia.org/wiki/Two%27s_complement

All explained on the DS18B20 datasheet. Thanks.



Re: How to read DS3231 Internal temperature sensor, example code

(<https://forum.arduino.cc/index.php?topic=262986.msg2715826#msg2715826>)

Apr 17, 2016, 03:51 pm (<https://forum.arduino.cc/index.php?topic=262986.msg2715826#msg2715826>)

#20

many thanks to all 😊

for this usefull posts, finally I can get temperature without using float variables.

[Go Up](#)

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