UM0214
User manual

Ambient light sensor demonstration board

Introduction

This user manual, along with the VM6101 datasheet will enable you to evaluate the VM6101.

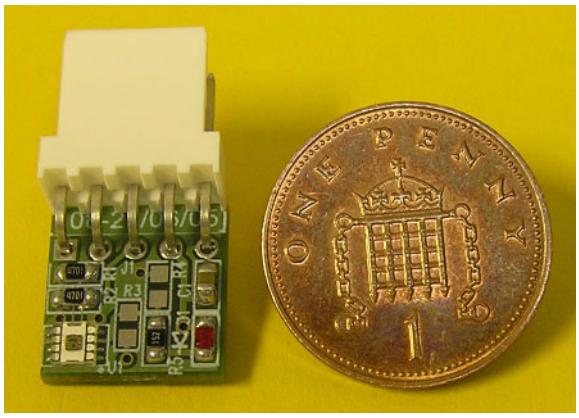
Kit contents

- 1 x VM6101 demonstration board
- Parallel port cable

Order codes

Part number	Description
STV-6101-R01	Demonstration board

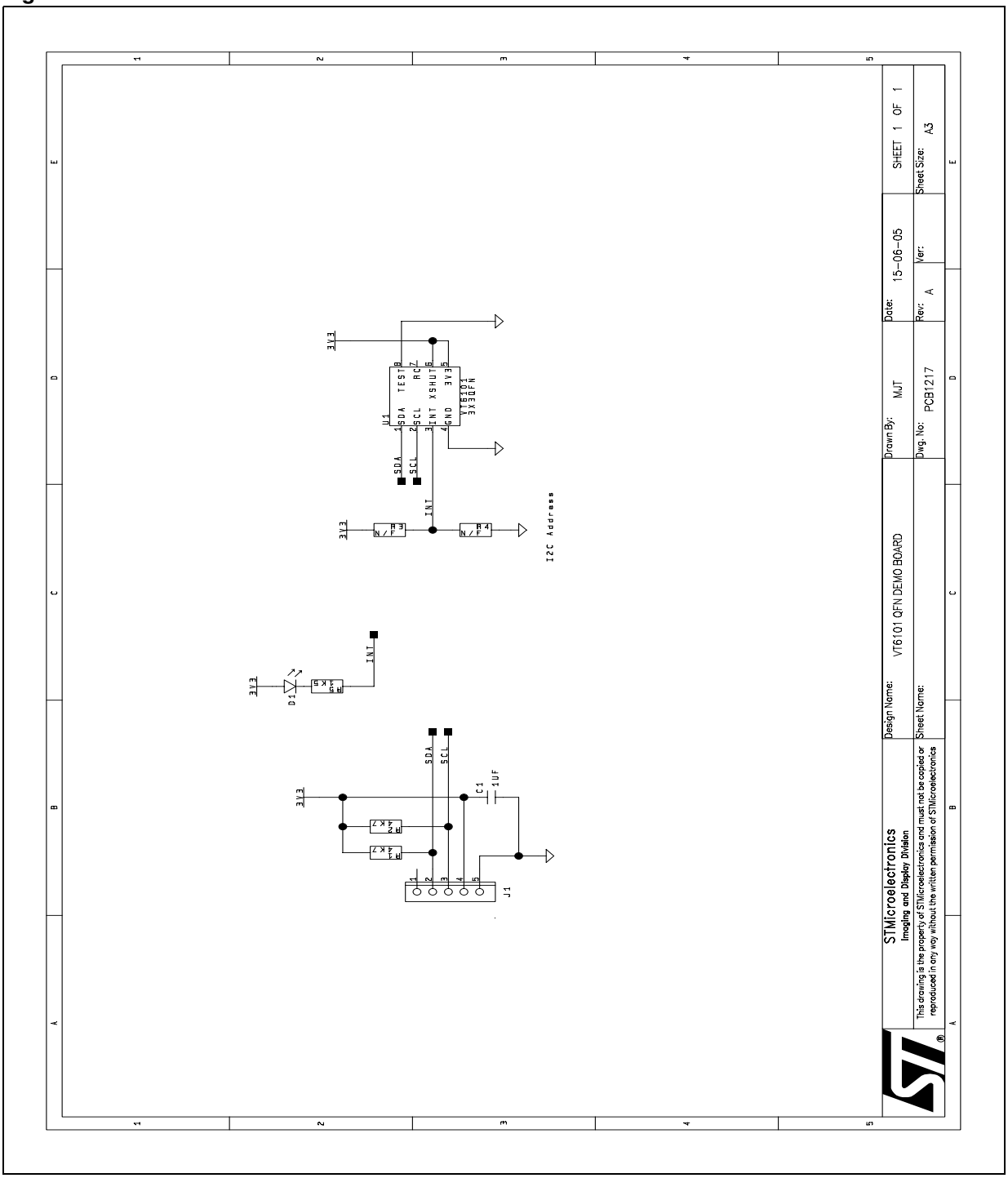
Figure 1. Demonstration board



1 Hardware

1.1 Demonstration board

Figure 2. Demonstration board schematic



1.2 Bill of materials

Table 1. Demonstration board BOM

Reference	Description	Manufacturer	Part number
U1	Ambient light sensor	STMicroelectronics	VM6101V008
D1	Red Led - surface mount	Standard component - many suppliers	
C1	1uF Ceramic Capacitor	Standard component - many suppliers	
R1,R2	4K7 I2C pullup resistors	Standard component - many suppliers	
R5	1K5 Resistor	Standard component - many suppliers	
R3,R4	Not fitted (device address selection pullup/down resistors)	Standard component - many suppliers	

2 Software

2.1 Installation

1. Check that the user logged on has Administrator rights for the PC/Laptop that is being used. This can be verified by checking the User Accounts (Start: Settings/Control Panel/User Accounts)
   If administrator rights are not enabled, please see local network administrator to enable them as they must be enabled for software to operate corrrectly.
2. Check that the PC/Laptop has the parallel port configured as ECP. This can be verified using Device Manager (Start: Settings/Control Panel/System/Hardware/Device Manager)

Figure 3. Parallel port setting in device manager

If the Parallel Port is not set up as ECP, then you will need to change it in the BIOS settings.

PC / LAPTOP CONFIGURATION:

a) Power on the PC / Laptop and enter the BIOS setup

b) Go into the Integrated Devices menu -> Parallel Port

c) The parallel port settings should be changed to:

Parallel Port	Enabled
Mode	ECP
Base I/O Address	378H
Interrupt	IRQ 7
DMA	DMA Off

d) Save and Exit

3. Install the v2wreg driver by double clicking on the InstV2W.exe icon and follow the commands given by the installation wizard.[(a)]
4. Copy across the 'VM6101_DEMO_release_v*.*.exe'[(b)] and the 'VM6101_ACQ.exe' applications to a suitable location (for example C:\VM6101).

2.2 Connection

1. Connect VM6101 demo board to the parallel port via the cable supplied.
2. Open VM6101_Demo application by double clicking on it.
3. If an initial connection error occurs and the software cannot connect to the hardware the following error message is displayed:

Figure 4. Connection error

If this error is seen make sure the cable is properly connected to the demo board and parallel port. Hit retry to try to connect again.

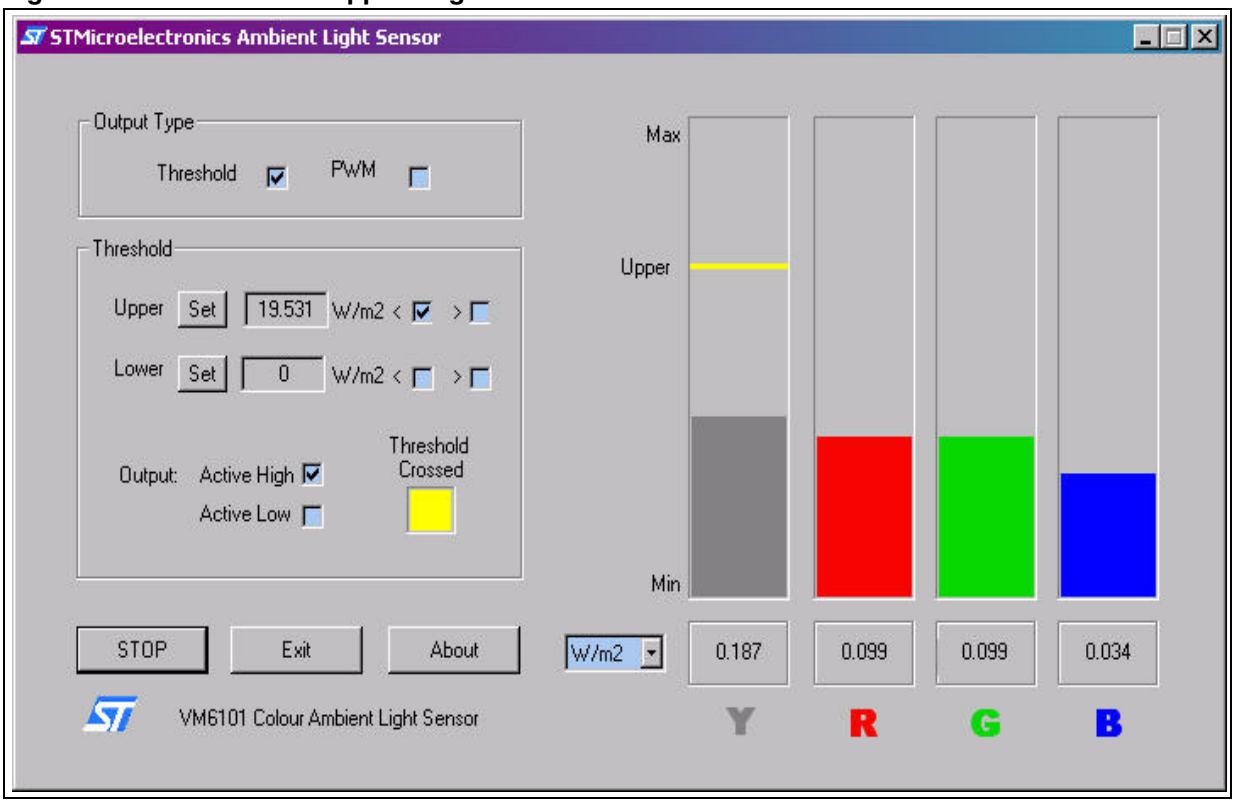
If this error message continually occurs there could be a problem with the BIOS settings so these should be checked, then the above steps followed again. If the error still occurs a hardware change is needed.

4. Once a connection is established the following screen should be displayed:

a. To install the software required, you will need Administrator rights on the PC.

b. The latest version should always be used. For example 'VM6101_DEMO_release_v2.3.exe'

Figure 5. VM6101 demo app dialog



2.3 Demo application options

Start/stop

This button starts/stops the demo, on start the Y bars shows each of the pixel's activity.

Exit

This button closes down the application.

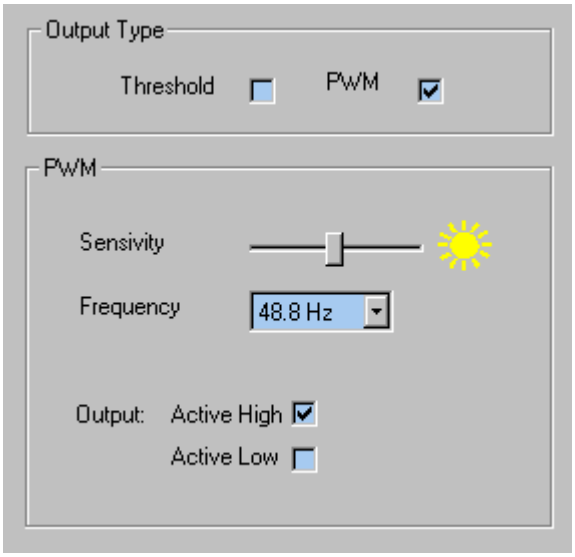
About

This button shows the version information.

Output type

The user can select either *Threshold* or *PWM* (Pulse Width Modulation). The default is *Threshold* and therefore the threshold options are shown in the group below (see *Figure 5*). When *PWM* is selected this group changes to the PWM options. See *Figure 6*.

Figure 6. PWM option



Threshold

The *Threshold* options include upper and lower threshold setting with *Greater Than / Less Than* tick boxes for these thresholds and *Active High / Low* O*utput*.

The default is for the *Upper Threshold* to be set to 19.531 W/m2 with the *Less Than* box ticked (as shown in *Figure 5*), the output is set to *Active High*. In this mode the LED on the demo board should be on in normal "office" lighting conditions.

When the user hits the *START* button the LED output will be mimicked by the *Threshold Indication* box which will turn yellow when the LED is on. If the threshold is crossed the LED on the demo board turns off. If the output is changed to *Active Low* the LED (and threshold indication box) the output is inverted (i.e. the LED will turn on if the threshold is crossed).

The user can set the thresholds by hitting the *SET* button beside the relevant threshold. This will set the threshold to the current light level experienced by the sensor when the button is hit.

Note: The Thresholds can only be set when the demo app is running.

The thresholds are activated using the tick boxes, that is the threshold is only activated when the *< or >* for that threshold is ticked. The user can deactivate a threshold by deselecting the ticks.

PWM

When the *Output Type* is changed to *PWM* the *Sensitivity* and *Frequency* options are displayed as shown in *Figure 6*.

The *Sensitivity* and *Frequency* can be changed by using the slider and drop down menu.

Units

The units displayed in the Y Bar outputs can be changed by using the drop down menu beside the *About* button. This will change the units that are displayed in the box under the pixel's light bar and also change the displayed value of any thresholds that are set.

3 Revision history

Table 2. Document revision history

Date	Revision	Changes
5-Jun-2006	1	Initial release.