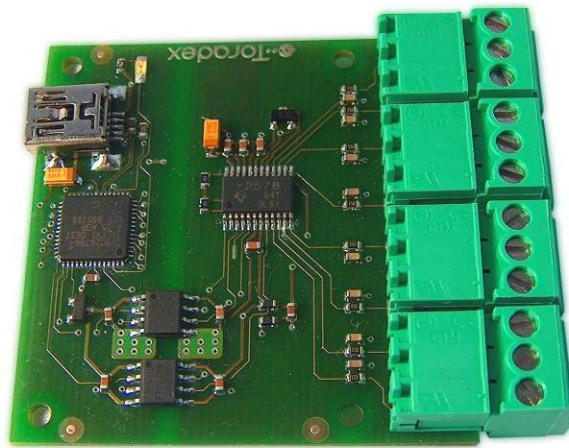


Oak Sensor 10V V1.2a.001 Test Instructions



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Related Document

- [1] Labeling Concept “Oak_Sensors_Labeling_Concept_YYYY-MM-DD.pdf”
- [2] Programming Instructions “Oak_Sensors_Programming_Instruction_YYYY-MM-DD.pdf”



2. Oak 10V interfaces

2.1. Top Side Connectors: Physical Drawing

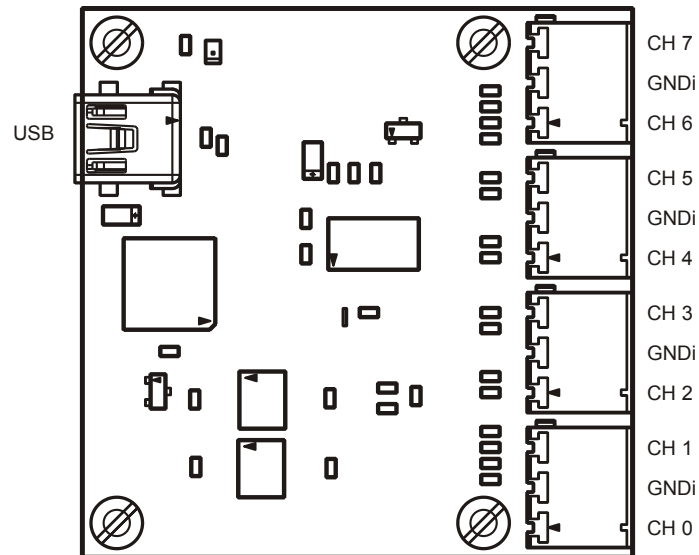





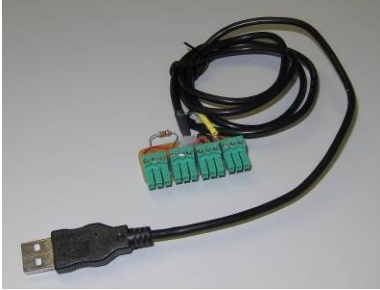
Fig.1 Oak 10V connectors – Top Side

3. Test Material

To test this Oak Sensor the following Material must be present:

<p>The screenshot shows the 'Oak Production Test' window. It has a menu bar with 'File' and 'Help'. Below the menu bar, there is a message: 'Connect only one sensor at a time!'. The main area is divided into several sections: 'Oak Sensor' with fields for Type, VID, PID, REV, and SN; 'Serial Number' with a dropdown menu and a 'Run' button; a group of radio buttons for 'Manual Control', 'Copy Connected Serial', 'Automatic New Serial', 'Scan Serial', and 'Auto Set on Connect'; a group of checkboxes for 'Calibration', 'Test', and 'Set Serial'; and buttons for 'Run', 'Exit', and 'Exit'. At the bottom, there are sections for 'Test Status' and 'Current Logfile'.</p>	<p>Program “Oak Production Test” delivered by Toradex</p>
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	<p>2D Barcode scanner with USB Interface:</p> <p>Required quantity: 1</p>
	<p>USB Cable Type A-Mini B</p> <p>Required quantity: 1</p>
	<p>PC or Laptop with 2 USB connectors and installed Windows XP or Windows 7</p> <p>Required quantity: 1</p>
	<p>Test Adapter</p> <p>See chapter 9</p> <p>Required quantity: 1</p>
<p>05151200_Oak_10V_V1_2a_001_ Prog_Test_Data_2011-12-12.zip</p>	<p>Test Program for Oak 10V</p> <p>This Zip file contains the Hex-File to program the Oak 10V Sensor and the Test program with the settings to test the Oak 10V.</p>



4. General workflow for testing

All Oak Sensors are tested in a similar way.

- On a Windows, create a directory according the roles of chapter 5.
- Expand the delivered Zip file with the Test program in the chosen directory.
- Configure the test program.
- Run the tests for all sensors (the test program creates a log file for all sensors in the current directory).
- Compress the whole directory structure according the roles of chapter 5 with all files in a Zip file. Use the name of the delivered Zip file and your factory name at the end.
- **Send this Zip files back to Toradex**
- Toradex puts the content of these Zip files in their archive so that Toradex can look up the test log from every Oak sensor

5. Install and configure the Test program

5.1. Create the directory

Create the directory somewhere on the PC which is used for the test.

....\2011-11-29\Oak 10V\

The **last two subdirectories** of the path must include the current data and the Oak Sensor type like shown above.

5.2. Expand the delivered Zip File for the testing

Expand the delivered Zip in temporary directories and copy the files of the subdirectory "Production_Test" in your directory.

In your directory "....\2011-11-29\Oak 10V\" must be the followings files:

ini.xml	Configuration File
Oak_ProductionTest.exe	Test program with its associated files
oak.xml	
oak.xmt	
oak.xsl	
oaka.dll	
oaka.lib	
oakw.dll	
oakw.lib	



Remark: Unfortunately, the file "ini.xml" contains the setting for all sensors. In all test cases we use this file and the name is always the same. Therefore it is easily to mix it up. That's the reason to use for every Oak Sensor type a separate directory to do the test and send all files of the directory back. With this way we get the the log file, the used settings and test program back to register in our database

5.3. Adjust the configuration

The file ini.xml contains the setting for all Oak sensors.

In the file is a section for the Oak 10V:

```
..<P0x000E Name ="Oak 10V">
  <tol>
    0.2                (tolerance of voltage level)
  </tol>
  <Channel_0>
    -2.5              (voltage level of this input)
  </Channel_0>
  <Channel_1>
    -1.65
  </Channel_1>
  <Channel_2>
    -1
  </Channel_2>
  <Channel_3>
    -0.475
  </Channel_3>
  <Channel_4>
    0.475
  </Channel_4>
  <Channel_5>
    1
  </Channel_5>
  <Channel_6>
    1.65
  </Channel_6>
  <Channel_7>
    2.5
  </Channel_7>
  <PN>
    0515
  </PN>
</P0x000E>
```

This section defines the tolerance and the voltage level for every input. The voltage levels are generated by the Test adapter and the Test program compares these settings checking with the measured value for each input. Mainly this test checks if all inputs are working and don't have a short circuit to another inputs or GND etc. This test does not test the tolerance, linearity etc. of the inputs.

Normally, there is no adjustment of this setting needed.



5.4. Additional Files in the Zip File

The directory “Hex-File” contains the file:

Oak_10V_Firmware_Vx_x.hex

This is the Program code for programming the flash (see [2]) and is not used for the testing.

Please note that the version of the program is independent from the version of the product.

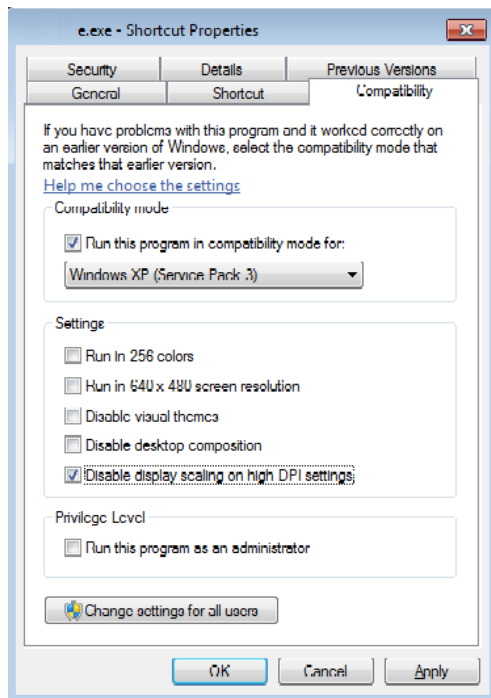
The directory “Instructions” contains this document.

5.5. Run the Test program on Windows 7

If the Test program runs on Windows 7, sometime the output of the test results stops scrolling (the test is still running and at the end of the test all buffered outputs are showing at once). Our impression is that this behavior is depending on the graphical setup of the Windows.

The following workaround can help:

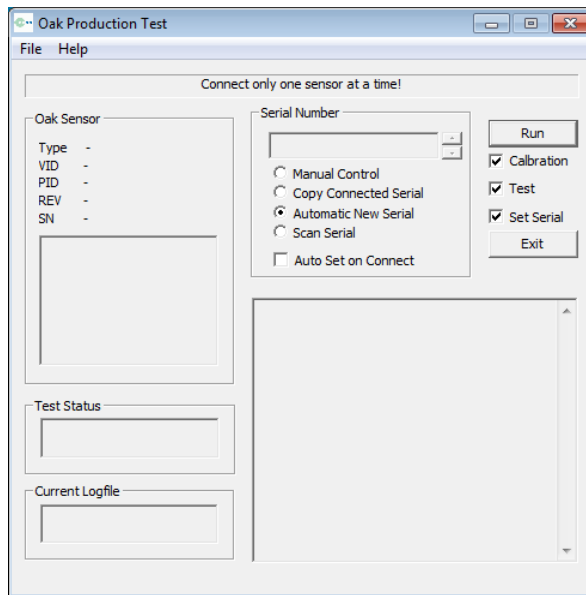
- Create link to start the Test Program
- Open the properties of this link (right mouse click)
- Setup the Compatibility as shown below





6. Start the Test program

For the Test program is no installation needed. It can directly run by starting “Oak_ProductionTest.exe” (double click).

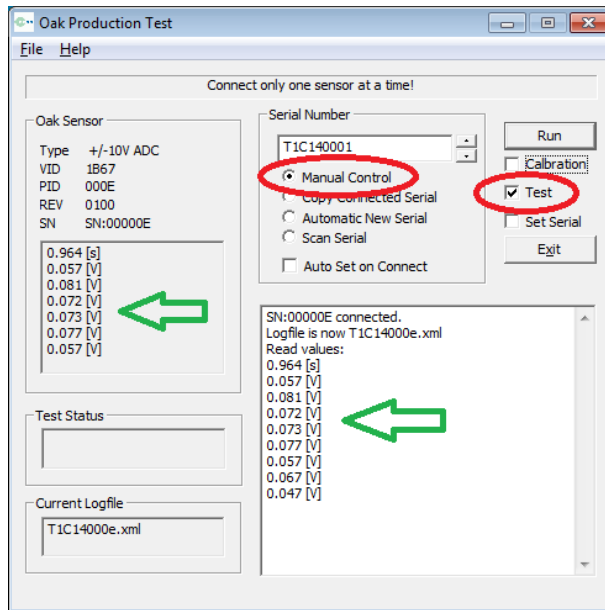


6.1. First connection of an “Oka 10V” sensor

After an „Oka 10V“ is connected the Test program shows on the left side Type, Serial number etc. In the log field the testprogramm shows the measured values (green arrow on the next picture). Additional the Led on the “Oak 10V” is flashing.

Remark:

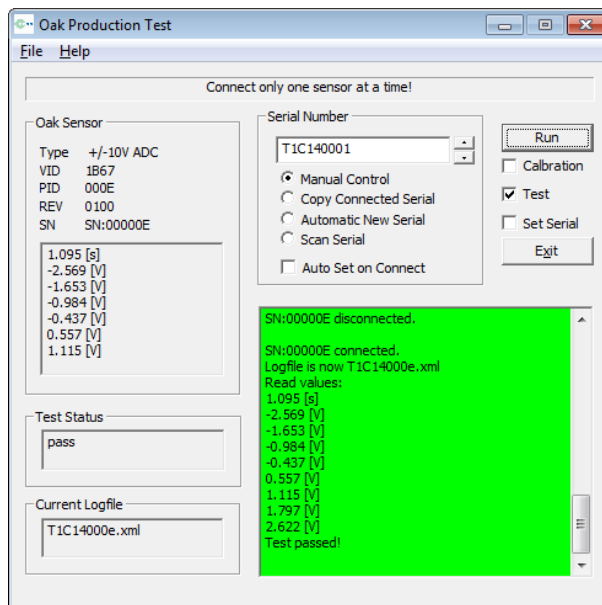
The measured values are only show right after the Oak 10V is connected to the Test program. To restart the measure the Oak 10V must be disconnected and connected again.



It is possible to run a test without writing the serial number back to the sensor and create a log entry in the log file. To do such tests the "Set Serial" must be unmarked and "Manual Control" must be enabled (see red oval in picture above).

After the the Test adapter is connected to the Oka 10V and to the voltage source the test can be start with the "Run Button".

Depend on the test result the log field is green (passed) or red (fault).

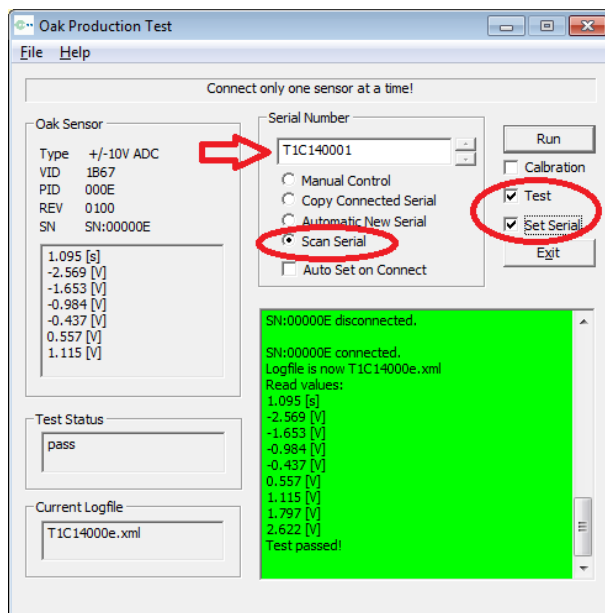


Please note: the colors of the log screen is changed at the end of every tests. This means during a test the logscreen can stay red because the test bevor was faulty.



7. Test a serie of the “Oka 10V” sensors

Before the Test can start the Test adapter must be connected to the Oka 10V and to the voltage source.



To test a Oak 10V Sensor the option “Test”, “Set Serial” and “Scan Serial” (see red oval) must be set.

- “Test” executes the test cycle
- “Set Serial” writes the the “Serial Number” (see red arrow above) in the Flash of the Sensor at the end of the test sequence. But for that, the Serial Number must fullyfil the specification for this sensor (product name, range of the serial-number etc).
- “Scan Serial” give you the option to scan the barcode with the “2D Barcode scanner” and automatically run the test right after the scan.

Remark: The field “Serial Number” (see red arrow) must be empty before a scan starts and the label must following the rules described in [1] otherwise an error message appears at the end of the test cycle.

The field “Serial Number” is cleared by connecting a sensor or by the user.

Important The serial number must be get from the lable with the barcode.

To do that, the folling tow points must be fulfill:

- The label must be printed according to the document “Labeling Concept “Oak_Sensors_Labeling_Concept_YYYY-MM-DD.pdf” (see [1]) and **put on the sensor before the test** starts.



- Option “**Scan Serial**” **must be used** for testing the production.
(other option can save a serial number in the flash witch is not in line with the serial number on the barcode)

7.1. Logging of the test result

All Test are log in the file “oak.xml” loacated in the same directory as the Test program ist. This file can be show with a HTML Browser which supports the XML format (nearly all of the current browser).

To show the logs oben the File “T1C14000e.xml” with the browser (file open instead of putting a URL address).

8. Send the test results back to Toradex

As described in chapter 4 at the end of the test of all Oka 10V sensors the test result must be send back to Toradex.

To do it, pack all files including the two subdirectories above in a zip file and mail it to Toradex.

Example:

The following directory contains the test program with all the files like setup, log etc.

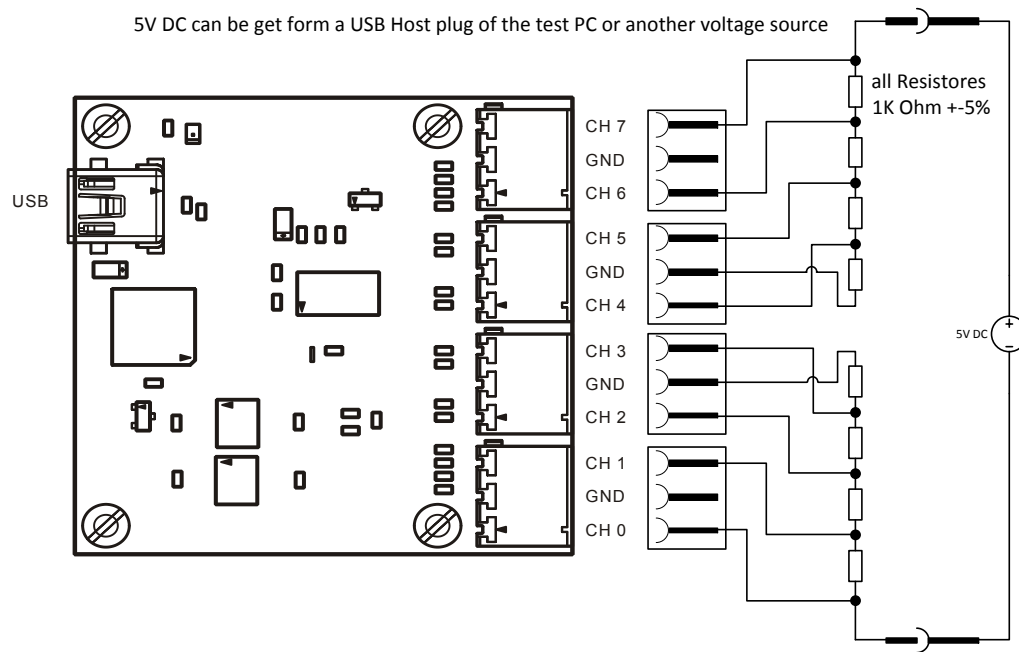
..\2011-11-29\Oak 10V

Beside the files the Zip file should include the last two directories of your path. To do it commands the Zip program to zip all file of the directory “**2011-11-29**” including all subdirectories and files below.



9. Test adapter

The Test adapter is a voltage divider to feed different voltage level to the inputs of the Oak 10V.



Schema of the Test adapter



Example of a Test adapter using an USB plug to get the 4V DC



Revision History

Date	File Name	Initial	Changes
2011-12-12	05151200_Oak_10V_V1_2a_001_ Test_Instructions_2011-12-12	ub	Initial release
2011-12-14	05151200_Oak_10V_V1_2a_001_ Test_Instructions_2011-12-14	ub	Add chapter “Run the Test Program on Windows 7”, adjust some Filenames, correct some spellings

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