InnoSenT
Innovative Sensor Technology

iSYS-6103_USB

iSYS_6003 and USB start-up Board

quick-start guide V1.0

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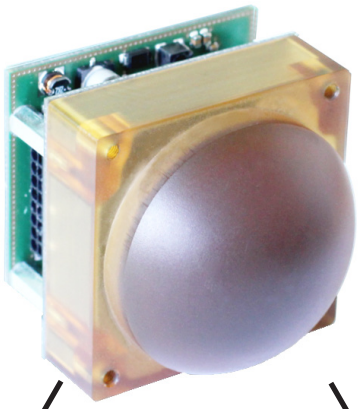
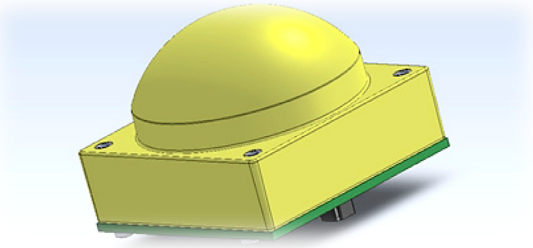
12V Power Supply Cable

USB Cable

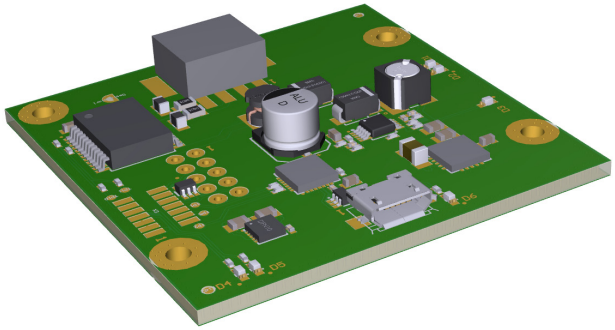
iSYS_6103_USB



iSYS_6003



USB Interface Board



Overview: Interface Board

The interface board serves for three purposes:

- It powers the sensor via the 12V power supply (cable included)
- It provides USB interfaces for communication with the customer PC
- It provides several LED's for diagnostic indication

INTERFACE

PCB terminal block

Conductor cross section min AWG 26

max AWG 20

use crimped ferrul

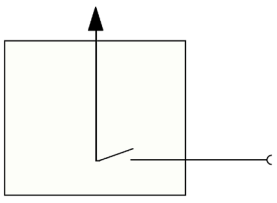
PIN #	DESCRIPTION	IN / OUT	COMMENT
1	Vsupply	IN	supply voltage between 10V and 30V
2	GND		Ground
3	OUTPUT 2	OUT	Configurable Output
4	OUTPUT 1	OUT	Configurable Output

OUTPUT DESCRIPTION

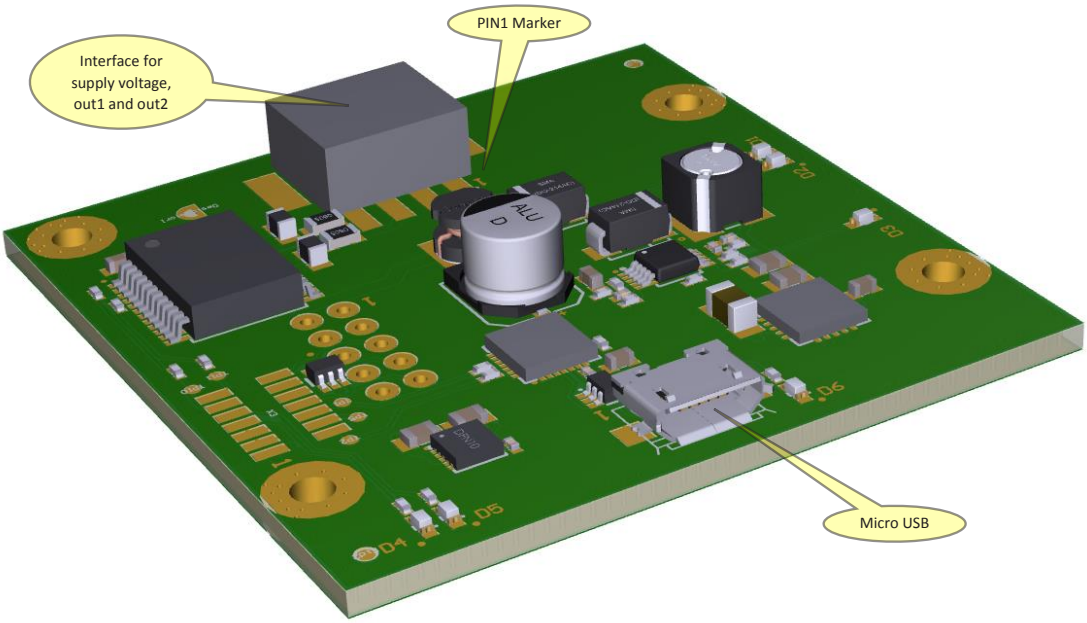
The outputs are open drain connected to positive potential

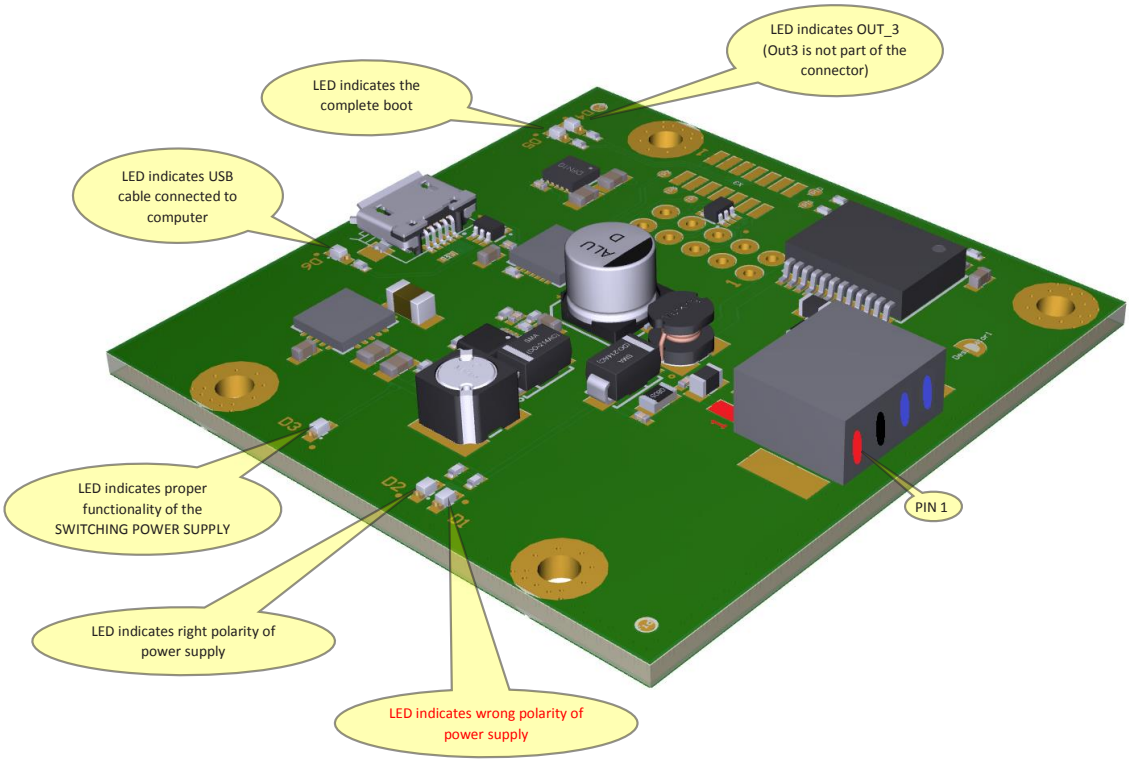
Vout = Vsupply - 1Volt

Output sketch



VNI4140K


PIN1 Marker
Interface for supply voltage, out1 and out2
Micro USB


LED indicates OUT_3 (Out3 is not part of the connector)
LED indicates the complete boot
LED indicates USB cable connected to computer
LED indicates proper functionality of the SWITCHING POWER SUPPLY
LED indicates right polarity of power supply
LED indicates wrong polarity of power supply
PIN 1

Demonstration Kit – first steps
(for use with USB)

These steps help you to set up the iSYS-6003 demonstration kit easily and evaluate first measurements with the software package "iSYS-6003 GUI".

a. Download all available resources for the iSYS-6003 demonstration kit

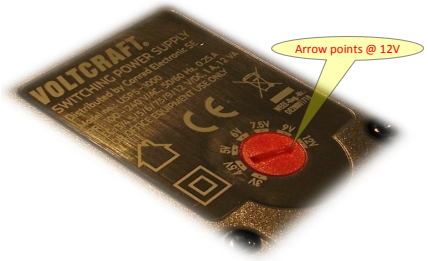
The iSYS-6003 demonstration kit consists - alongside the hardware in front of you - of the software package "iSYS-6003 GUI" for visualization of the sensor data and of various documents / application notes.

This software and documentation can be downloaded from:
http://www.innosent.de/services/downloads/software-manuals/

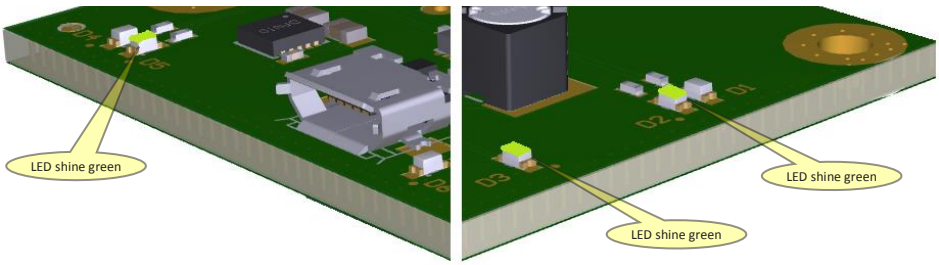
b. Hardware Setup

In the hardware setup section all steps necessary to set up the demonstration kit hardware are explained.

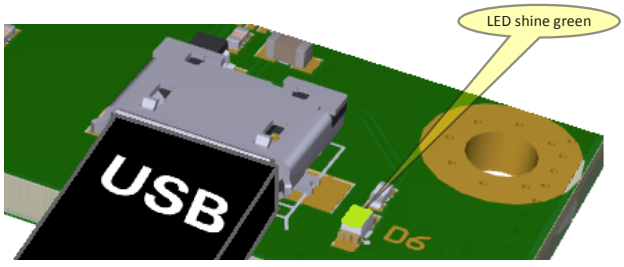
• Please make sure that the power supply arrow points @ 12V



After connecting the positive supply the LED2, LED3 and LED5 are shining green.



After conecting USB to your PC the LED D6 shines green

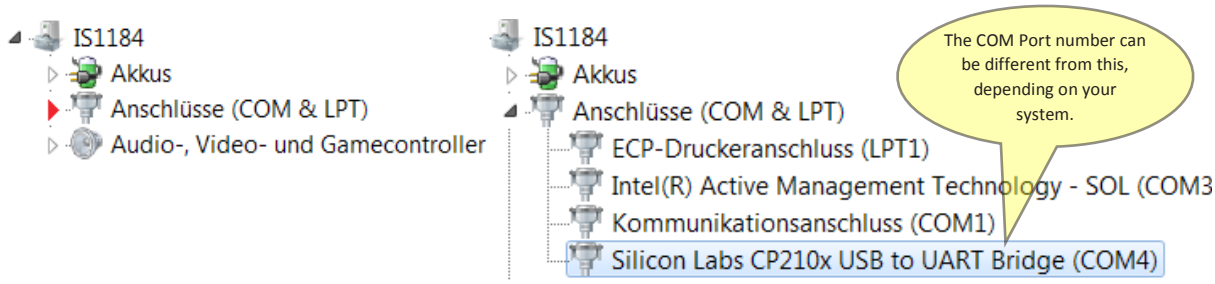


c. Software Setup

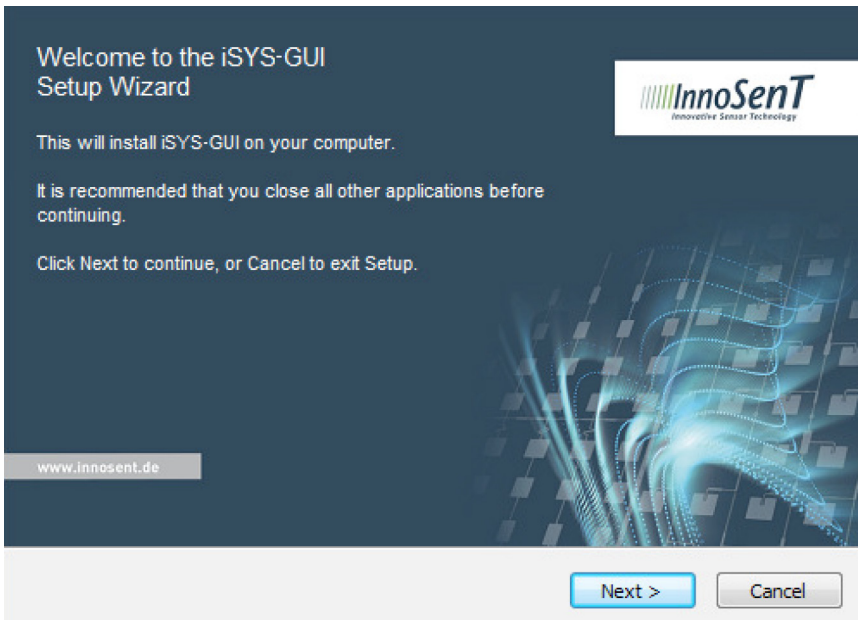
• Install driver for Silicon Labs CP2102

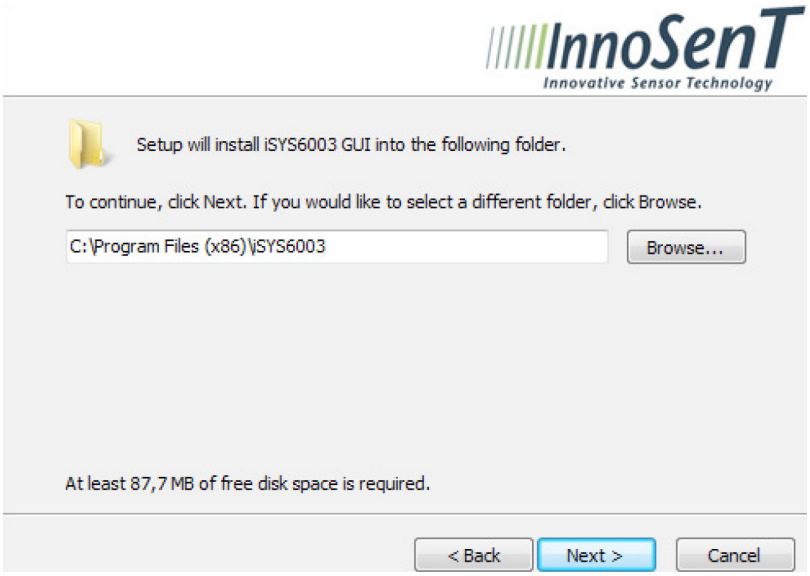
Please download the latest USB driver for the CP2102 from https://www.silabs.com/.
When you search for "cp2102 usb driver" on their website, the first result leads you directly to the download page. Make sure that the driver you have downloaded fits to your operating system (e.g. Windows 7).
The driver needs to be unzipped after downloading and installed on your system. (You probably need administration rights to do that.)

The USB connection will be a virtual com port on your PC. You can check in the devices manager
%SYSTEMROOT%\system32\devmgmt.msc, whether the installation was successful:



• Install the "iSYS-6003 GUI"
For quick access to the iSYS-6003 measurement results and for graphical visualization the software package "iSYS-6003 GUI" has been developed.
Please select the file "iSYS6003_GUI.exe" from the downloaded folder and execute it:

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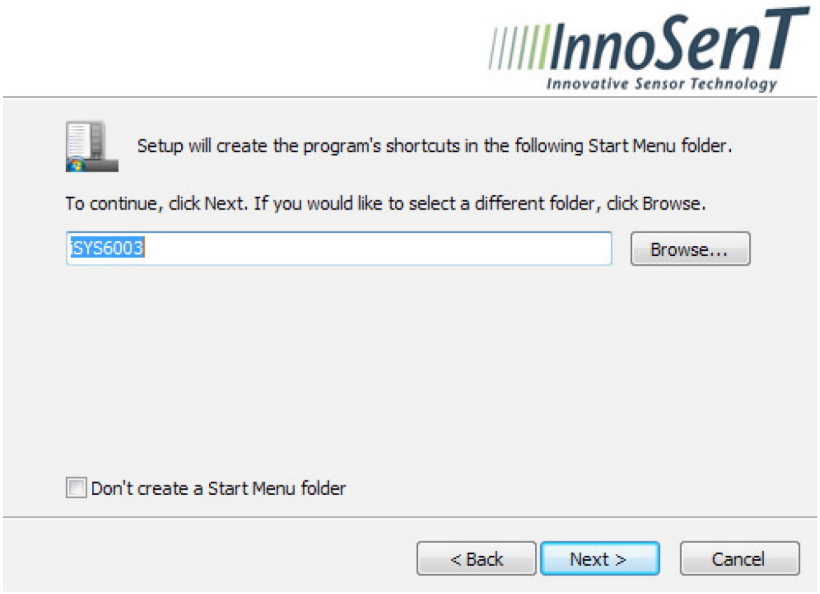
Innovative Sensor Technology
Setup will install iSYS6003 GUI into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files (x86)\iSYS6003
Browse...
At least 87,7 MB of free disk space is required.
< Back
Next >
Cancel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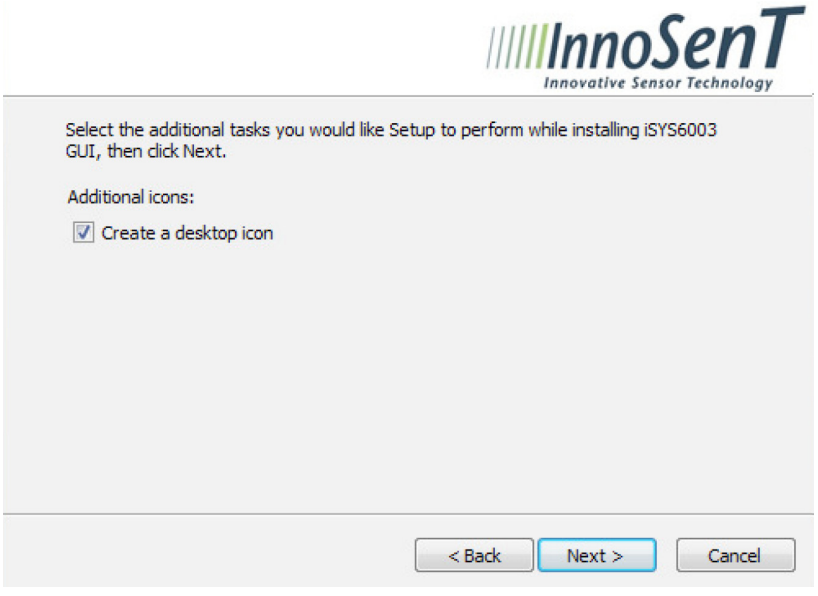
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
SYS6003
Browse...
Don't create a Start Menu folder
< Back
Next >
Cancel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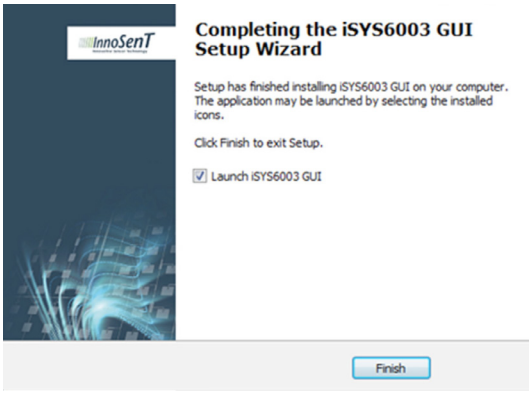
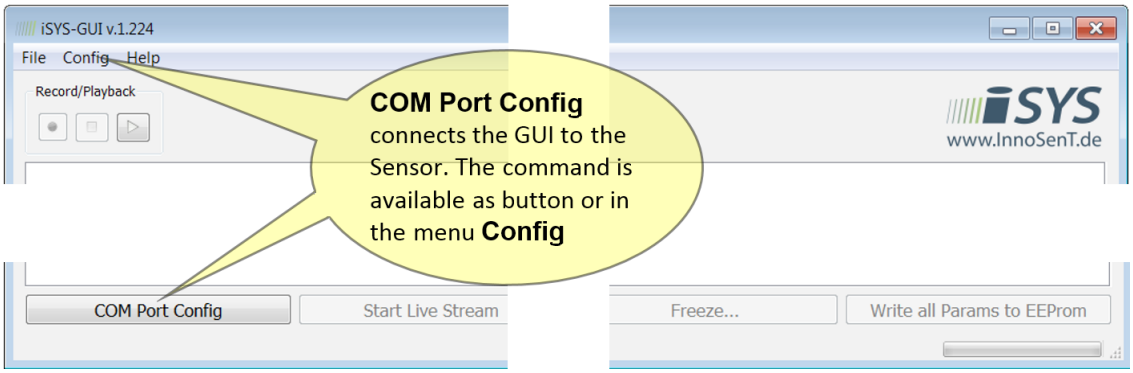
Select the additional tasks you would like Setup to perform while installing iSYS6003 GUI, then click Next.
Additional icons:
Create a desktop icon
< Back
Next >
Cancel



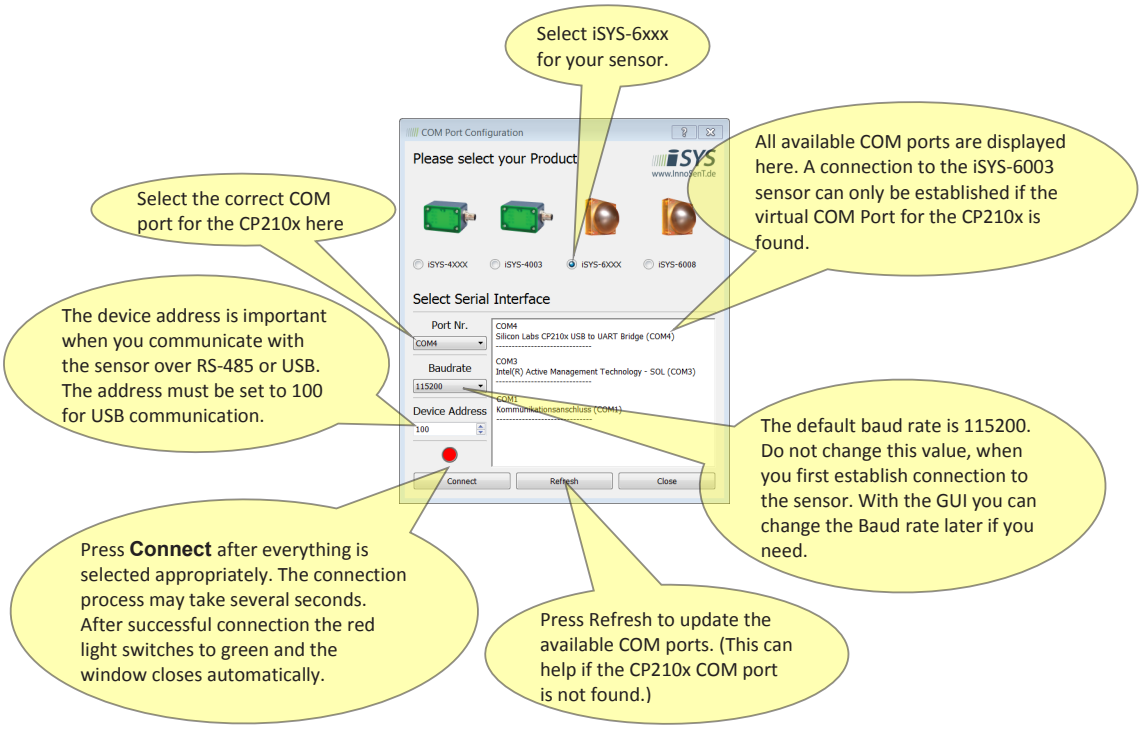
Using the iSYS-6003 GUI

The iSYS-6003 GUI is a software that communicates with the iSYS-6003 and displays measurement results. There are a variety of features that can be selected and displayed. Please refer to the document "iSYS-6003_GUI_manual.pdf" for detailed explanation.
In this document a very brief introduction is given to you, so that you can see first results on your PC screen.

- Start the GUI
  After starting the GUI you see the following window:

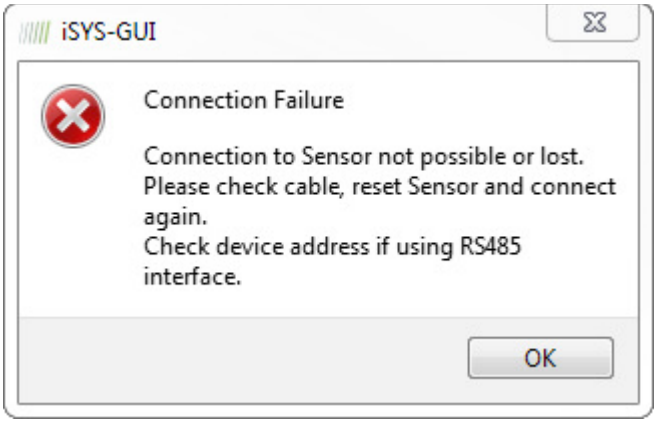


• Please select COM Port Config for establishing a connection to the sensor:



Troubleshooting:

Connection cannot be established



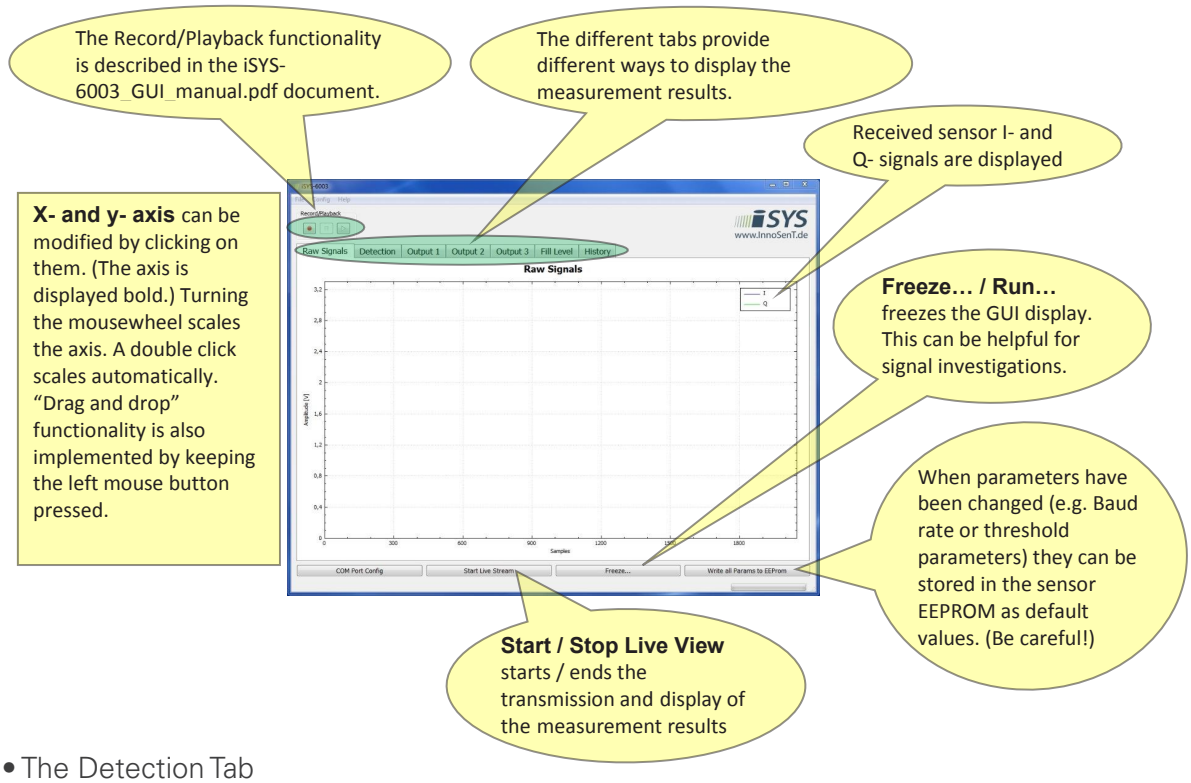
Solution:

1) Turn sensor off and on again

2) Restart iSYS-6003 GUI

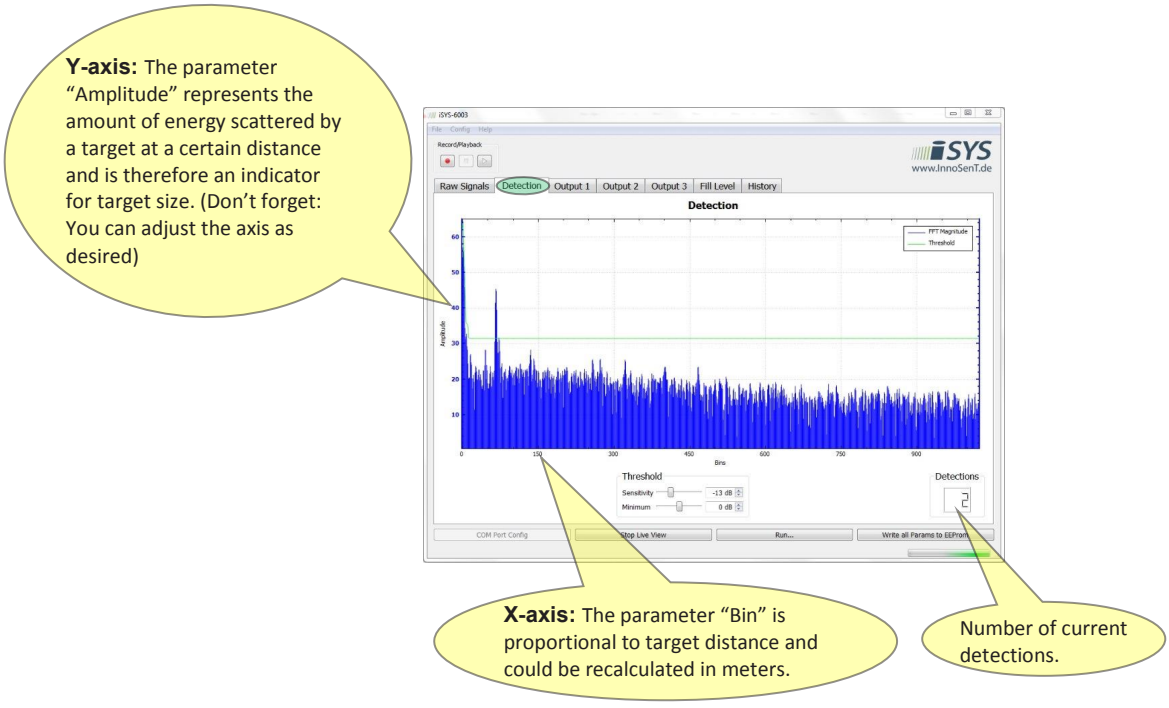
3) Check COM Port

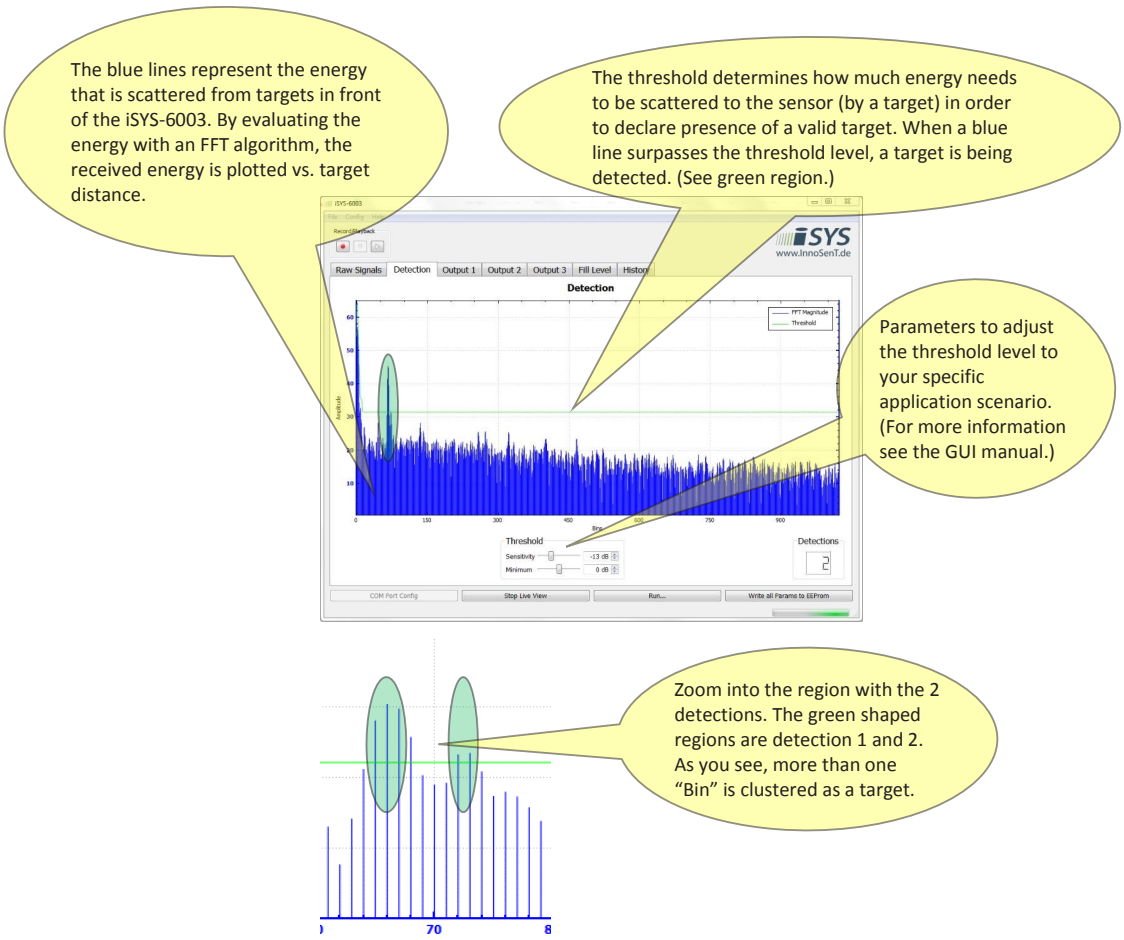
General overview



- The Detection Tab

Please press Start Live View and switch to the Detection tab.





This Tab is very important for you, because here you can set parameters that influence whether a target is being detected as such or not.

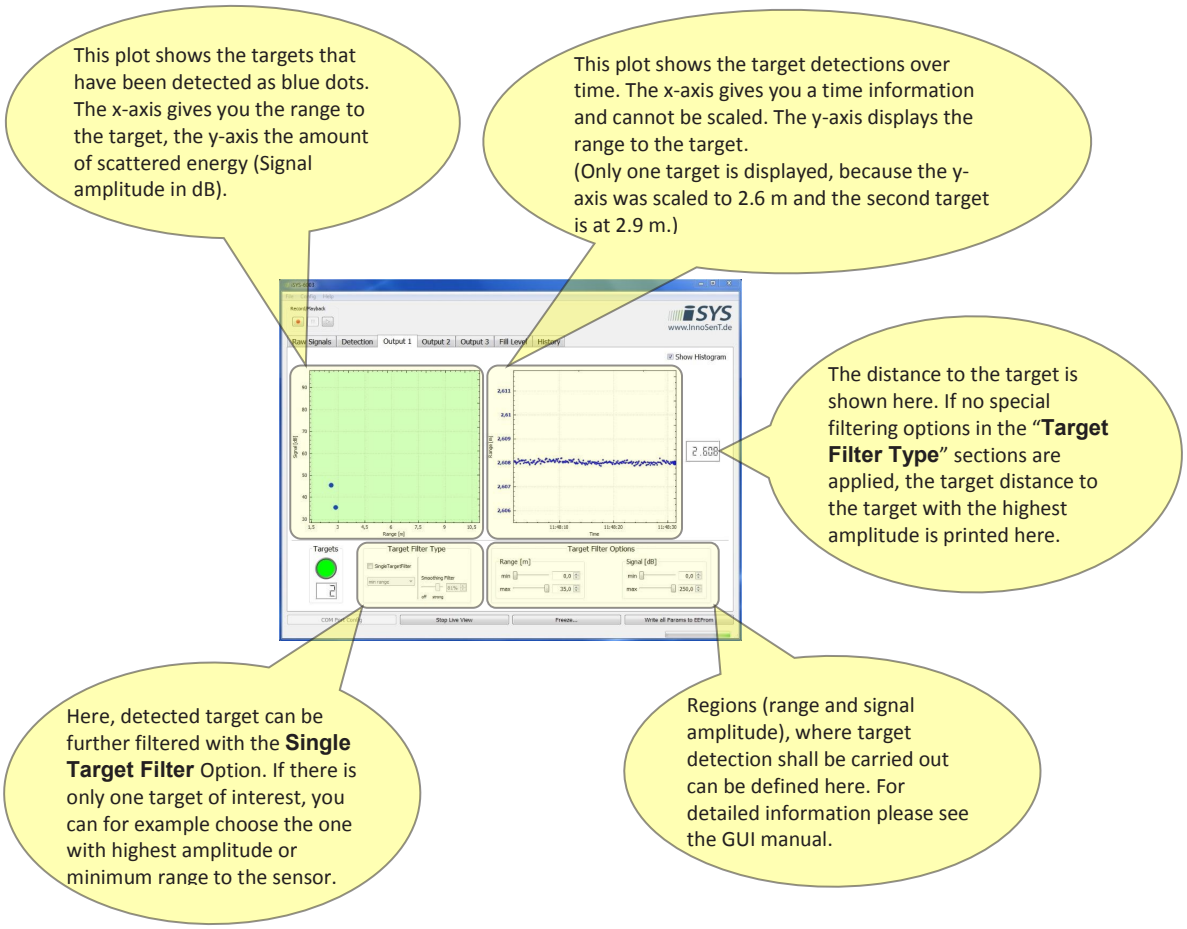
The received signal energy (from probably more than one target) is represented in the frequency domain by calculation of the FFT. Targets with a greater distance to the sensor cause a signal with a higher frequency in the receiver and therefore appear further right in the plot. As you see, there is energy present at all target distances due to noise energy in the sensor. This is common to all radar sensors! To discriminate against scattered target energy and noise energy a threshold needs to be set in the GUI. Only when the energy is enough to surpass the threshold level, a target is detected.

Please adjust the threshold level to make it convenient for your application. You can use the parameters **Minimum** to do that.

As robust detection of targets is a key criteria for radar sensors. Do not hesitate to ask InnoSenT for support with your application. We have the knowledge and the tools to realize more sophisticated thresholds for you that are not implemented in the demonstration kit.

• The Output 1 tab

Please press Start Live View and switch to the Detection tab.



Feel free to experiment with the settings described here. For more information please read the GUI manual.

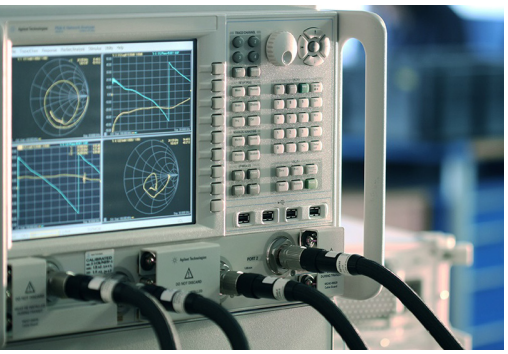
About InnoSenT

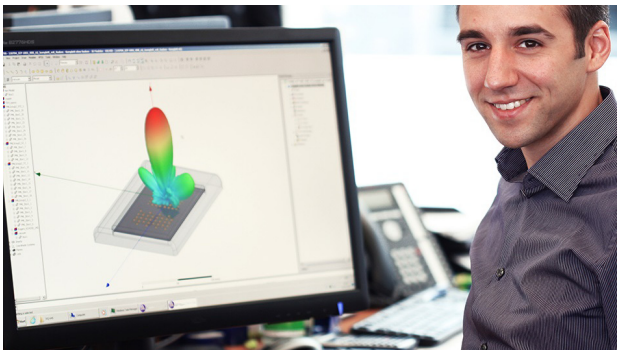
Founded in 1999 around a key team of 3 people with the vision to make radar technology affordable for industrial and automotive applications InnoSenT is nowadays one of the market leader in 24GHz radar sensor technology with more than 3 million built sensors per year.

InnoSenT is one of the world's largest sensor and systems manufacturers in the radar industry. Some key facts:

- InnoSenT develops and manufactures radar hardware
- mass production with over 3,4 million devices in 2014
- main focus on ISM Band sensors working at 24GHz, 61GHz and 77GHz for automotive applications
- product portfolio ranges from analog radar frontends up to complete sensor systems with a digital interface
- standard product portfolio as well as customer specific developments
- certified according ISO TS 16949:2009; ISO 9001:2008; ISO 14001:2004
- automotive quality grade is also applied for industrial business unit
- worldwide market presence for automotive and industrial business unit

InnoSenTs main focus is to find the perfect solution for your applications. We would be delighted to discuss the details with you.





Contacts

Customer satisfication - the most impotant goal here at InnoSenT. To achieve this InnoSenT built up a worldwide network of representatives.

To offer the best support to our customers InnoSenT works close together with selected representatives all over the world..

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