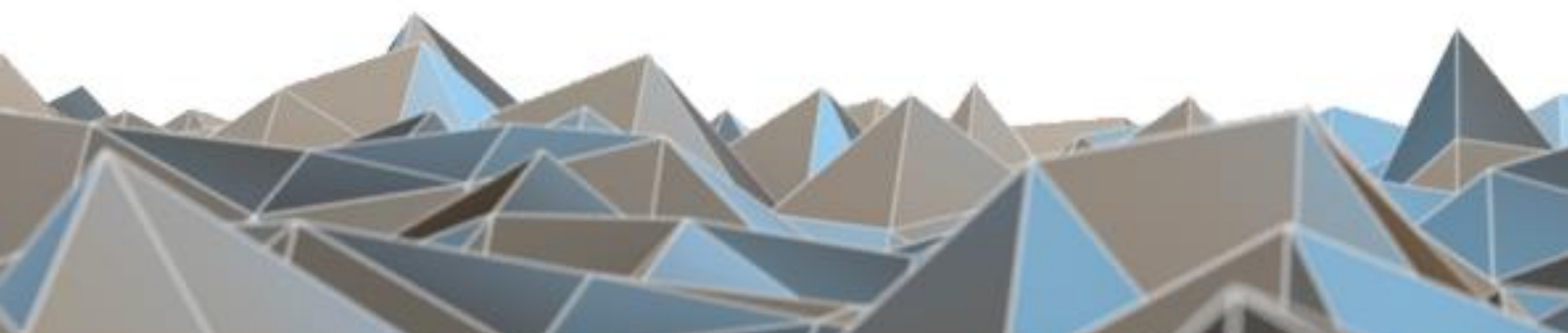
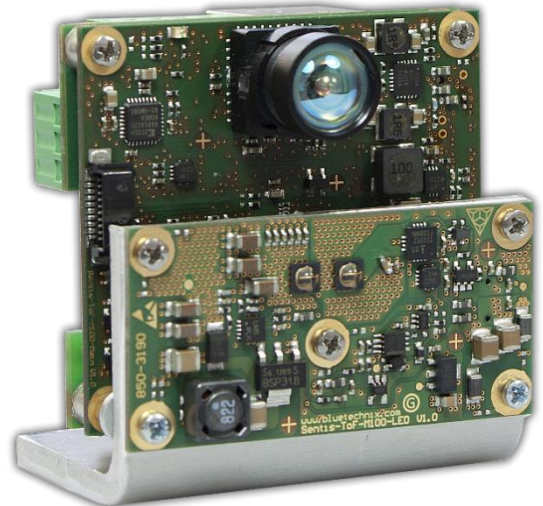


BLUETECHNIX
Embedding Ideas

Bluetechnix ToF Visualizer

Quick Start Guide

Version 1



Bluetechnix GmbH

Waidhausenstraße 3/19
A-1140 Vienna
AUSTRIA

office@bluetechnix.com
www.bluetechnix.com

Bluetechnix ToF Visualizer – Quick Start Guide

Document No.: 900-308 / A

Publication date: February 26, 2014

Subject to change without notice. Errors excepted.

This document is protected by copyright. All rights reserved. No part of this document may be reproduced or transmitted for any purpose in any form or by any means, electronically or mechanically, without expressly written permission by Bluetechnix GmbH.

Windows is a registered trademark of Microsoft.

Table of Contents

1	General Information.....	4
2	Introduction	5
2.1	Setup.....	5
2.2	Files included	5
3	Using the Software.....	6
3.1	Bluetechnix ToF Connection Manager	6
3.2	Bluetechnix ToF Visualizer.....	7
3.3	Bluetechnix ToF Model3d.....	8
4	Recommended Documents	10
5	Appendix	11
5.1	Support	11
5.1.1	General Support.....	11
5.2	Software Packages.....	11
5.3	Related Products	11
6	Document Revision History.....	12

© Bluetechnix GmbH 2013

All Rights Reserved.

The information herein is given to describe certain components and shall not be considered as a guarantee of characteristics.

Terms of delivery and rights of technical change reserved.

We hereby disclaim any warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Bluetechnix makes and you receive no warranties or conditions, express, implied, statutory or in any communication with you. Bluetechnix specifically disclaims any implied warranty of merchantability or fitness for a particular purpose.

Bluetechnix takes no liability for any damages and errors causing of the usage of this board. The user of this board is responsible by himself for the functionality of his application. He is allowed to use the board only if he has the qualification. More information is found in the General Terms and Conditions (AGB).

Information

For further information on technology, delivery terms and conditions and prices please contact Bluetechnix (<http://www.bluetechnix.com>).

Warning

Due to technical requirements components may contain dangerous substances.

1 General Information

This guide applies to the Sentis-ToF-M100 platform from Bluetechnix GmbH, referred to as 'sensor' throughout this document. Follow this guide chapter by chapter to set up and understand your product.

2 Introduction

2.1 Setup

- On your Windows PC, change your network adapter settings:
 - IP address: 192.168.0.1
 - Subnet mask: 255.255.255.0
- Use the Ethernet cable to connect the sensor device with your PC
- Power the sensor device as described in the manual
- Check if the sensor's led is blinking after some seconds

2.2 Files included

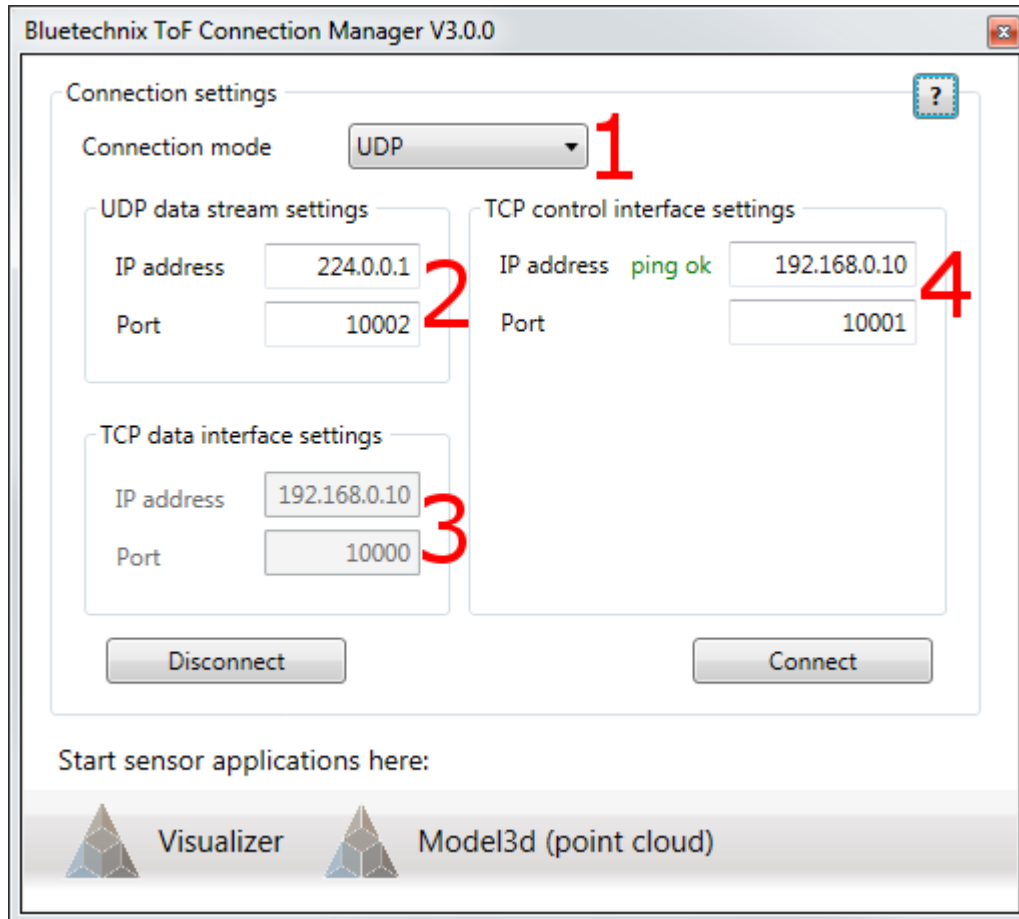
The software package includes the following files:

- This Quick Start Guide
- BltTofVisualizer.exe
- BltTofVisualizer.dll
- BltTofApi.dll
- BltTofApiControl.dll
- BltTofModel3d.dll
- OpenTK.dll
- OpenTK.GLControl.dll

Start the application executing the exe file.

3 Using the Software

3.1 Bluetechnix ToF Connection Manager

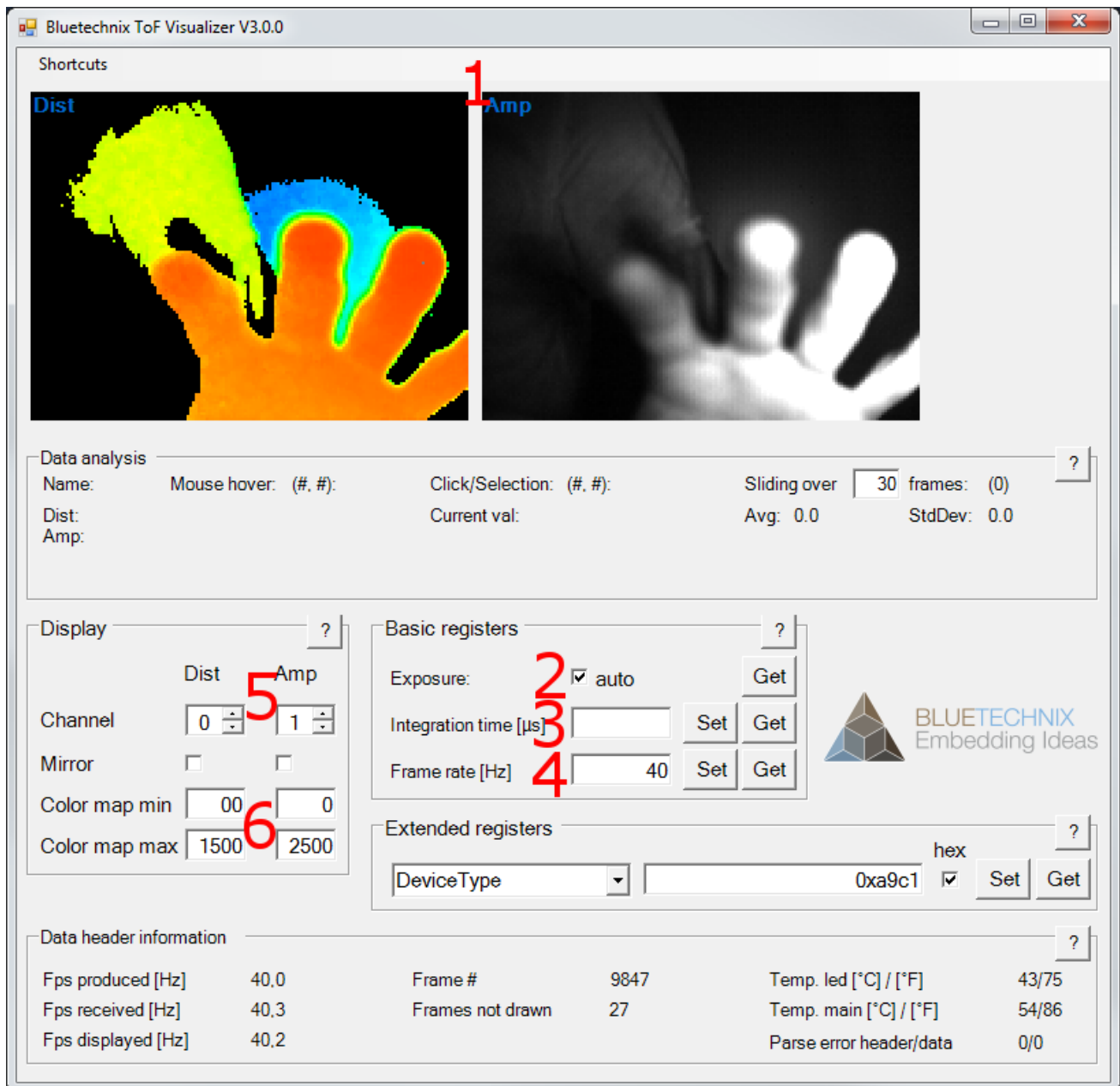


This small application uses the Bluetechnix ToF API in order to open a connection to the sensor and pass the functionality to other applications. It connects automatically with the preconfigured configuration and also opens the Bluetechnix ToF Visualizer. The Bluetechnix ToF Model3d can be opened by clicking the corresponding button at the bottom.

- 1: UDP: The data stream is read over UDP, the control interface is accessed over TCP
TCP: Both the data and the control interface are accessed over TCP
- 2: The connection configuration for the UDP stream
- 3: The connection configuration for the data interface over TCP
- 4: The connection settings for the control interface (ping ok/ping failed signals if a sensor device is reachable)

If the sensor or network interface was not ready at program start, try to disconnect and reconnect.

3.2 Bluetechnix ToF Visualizer

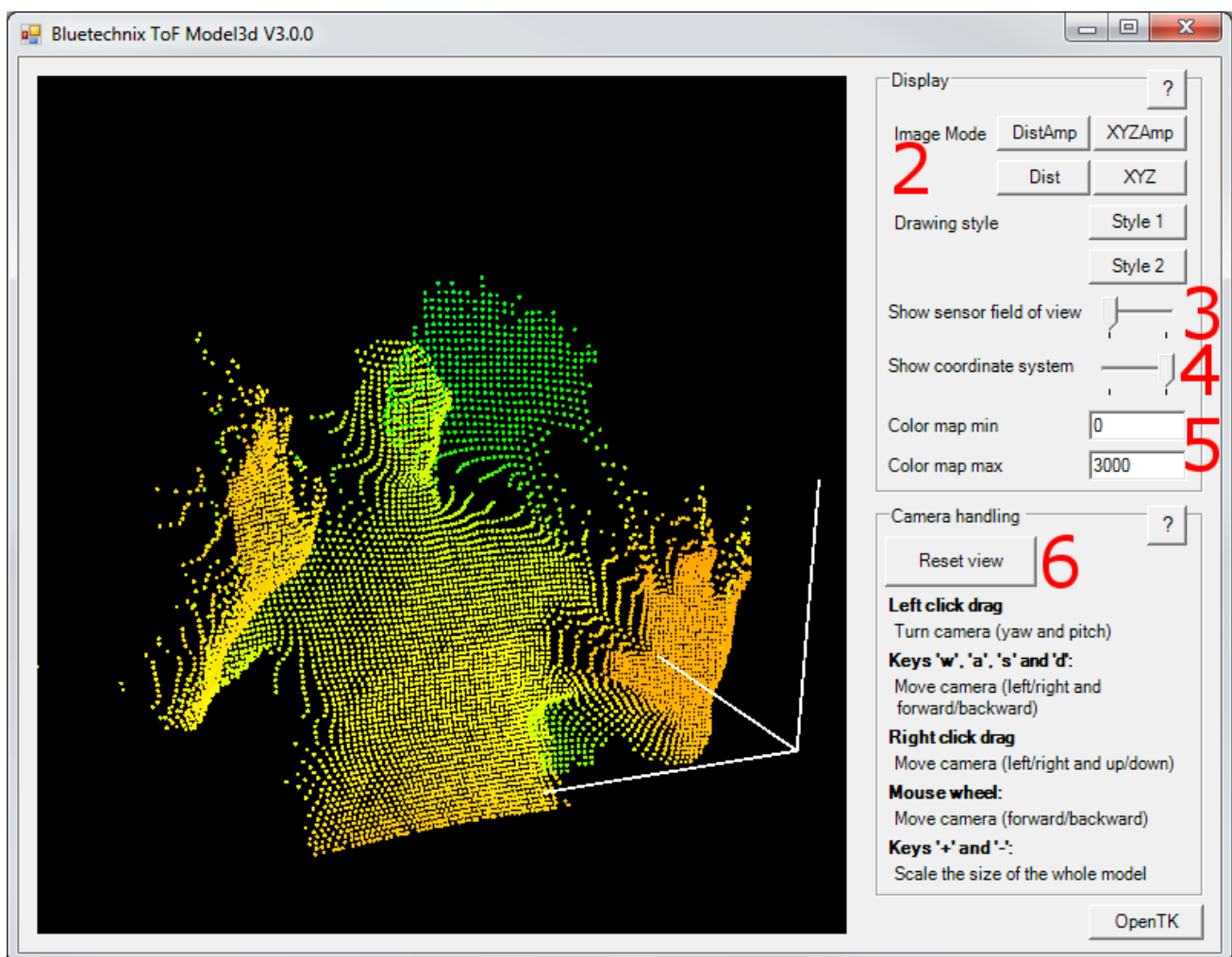


- 1: Sensor data is visualized in 2D. You can change the channel displayed (see 5). Distance data is visualized in a red-green-blue scale. Amplitude data is visualized in a monochrome scale. You can adjust the scale (see 6).
- 2: By clicking 'Get' you can read out if the sensor is set to auto exposure (by default it is not). By checking/unchecking the box you can turn on/off auto exposure in the sensors corresponding register.
- 3: 'Get' reads and 'Set' writes the integration time from/to the sensor device. By increasing the integration time, the depth range of the sensor can be increased. Dark objects can be seen more clearly. A higher integration time can also mean that objects get overexposed (they appear white in Distance and X channel)

- 4: 'Get' reads and 'Set' writes the target frame rate from/to the sensor device. Depending on the integration time, filter configuration or other influences the actual frame rate may not reach the desired value.
- 5: You can choose which channels are being displayed in the above picture boxes. The sensor sends a data stream consisting of up to four channels. The default configuration is 'DistAmp' which means that a channel with radial distance data and a channel with amplitude data (brightness) is transmitted. The image mode can be changed by writing register 'ImageDataFormat' (please consult the Sentis-ToF-M100 Software User Manual)
- 6: You can adjust the colour- or brightness scale for the above picture boxes. Distance and coordinates are painted in red-green-blue, where 'Colour map min' represents the value which is painted red and 'Colour map max' is the data to be painted in blue. Amplitude data is painted in grey values, where 'Colour map min' is painted in black and 'Colour map max' is painted in white.

For more detailed help, please click on one of the many question mark buttons or contact Bluetechnix support.

3.3 Bluetechnix ToF Model3d



- 1: The data from the sensor is displayed as a point cloud. Please note that all interactions manipulate your point of view (denoted by 'camera') and do not in any way turn or move the point cloud. Use 'w', 'a', 's' and 'd' in order to move the camera (yourself) sideways and forward and backward like in

- a first-person video game. Click somewhere (doesn't matter where) in the frame and move the mouse in order to look around you (i.e. change the camera's pitch and yaw). Right-click somewhere and move the mouse up and down in order to elevate and lower the camera (yourself).
- 2: These four buttons are shortcuts for the 'ImageDataFormat' register on the sensor. These four image modes can be set by a single click. They best show how different data can be displayed. Note: The image mode also affects the other window 'Bluetechnix ToF Visualizer' -> different channels are being displayed there as well.
 - 3: The sensor's field of view is indicated by a pyramid, showing the opening angles of the sensor. The opening angles are read from the sensor's corresponding registers.
 - 4: Activating this switch shows three white lines representing the coordinate system, which is described in the Sentis-ToF-M100 Software User Manual.
 - 5: You can adjust the colour- or brightness scale for the cloud's points. Distance and coordinates are painted in red-green-blue, where 'Colour map min' represents the value which is painted red and 'Colour map max' is the data to be painted in blue. Amplitude data is painted in grey values, where 'Colour map min' is painted in black and 'Colour map max' is painted in white.
 - 6: If you lose track of your point cloud, feel free to safely push this button. It will take you home.

For more detailed help, please click on one of the many question mark buttons or contact Bluetechnix support.

4 Recommended Documents

"Sentis-ToF-M100 Software User Manual" available from www.bluetechnix.com

5 Appendix

5.1 Support

5.1.1 General Support

General support for products can be found at Bluetechnix' support site

Support Link

 <https://support.bluetechnix.at/wiki>

5.2 Software Packages

Software packages and software downloads are for registered customers only

Software Package

 <https://support.bluetechnix.at/software>

5.3 Related Products

- Sentis-ToF-M100
- ToF-Flash
- ToF-Flash Adapter

6 Document Revision History

Version	Date	Document Revision
1	2014 02 26	First preliminary of the document

Table 6-1: Revision history