

BLUETECHNIX Embedding Ideas

Argos3D - P100

Quick Start Guide

Version 1.7







Bluetechnix

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Argos^{3D} - P100 - Quick Start Guide

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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 Unboxing

1.1 In the box

- Argos^{3D} P100
- Micro USB Cable
- 5V_{DC}/3A Power Supply
- Tripod
- Quick Start Guide
- Argos^{3D} P100 Support CD including SDK, Visualizer, manuals etc.

1.2 Connecting your Argos^{3D}-P100

1.2.1 Connector Overview

The Argos^{3D} - P100 features three connectors. A 5V_{DC}@2.5A connection, Micro USB2.0 and an external sync interface.



Figure 1-1: Connector Overview

- a. Modulation Light Interface
- b. Micro USB 2.0 Interface
- c. Power Connector

NOTE: Please follow the next steps in the right order to get your 'P100' up and running correctly.



1.2.2 Connecting the power supply

To ensure, that your Argos^{3D} - P100 works correctly, plug in the power supply and wait for approximately 10 seconds until the camera boots up.



Figure 1-2: Connecting Power Supply

1.2.3 Connecting USB2.0 cable

After boot up, plug in the micro USB2.0 cable and connect your Argos^{3D} - P100 to a free USB port of your PC.



Figure 1-3: Connecting USB2.0 cable



2 Evaluation Package

The Argos^{3D} - P100 Evaluation Package containing of the SDK, Visualizer, documentation etc. can be found on the enclosed **Support CD**. For updates register on our support website at <u>https://support.bluetechnix.com/</u> and download the latest version of the Evaluation Package for your Argos^{3D} – P100.

2.1 Support website



Figure 2-1: Download Evaluation Package



2.2 Login Screen

Bluetechnix Subversion Access Management System
Log In
Dear valued customer,
Thank you for purchasing Bluetechnix software. Please note that to enter this site you will need to create an account. If you haven't done so yet, please sign up here. If you already have an account, you may log in using your email address and password below.
For documentation and support please click <u>here</u> .
Login Details
Email address
Password
Login

Figure 2: Login screen

2.3 Register as new customer

If you don't have a valid customer login you can create a new account at <u>https://support.bluetechnix.com/software/CreateUser.aspx</u>



Bluetechnia	Subversion Ac ×					
⇒ C	https://support.blu	etechnix.at/software/CreateUs	er.aspx	5	0	
В	uetechnix Sub	version Access Mana	agement System			
N	ew User Information					
De Th fa	ear valued customer, nank you for purchasin st as possible.	g from Bluetechnix. Please read	d the instructions below so we are able to create your account as			
To mi th re	be able to download ultiple accounts for a s at all accounts of a co positories.	software from Bluetechnix' ser single company if for example n ompany share the same access	vers, you will need to create an account. It is possible to create nore than one employee needs to download software. Please note a rights. It is not possible to restrict certain employees to specific			
Th ur	nis system is not live a ntil you are actually ab	nd even if you see that you ar le to access them via SVN.	e allowed to access specific repositories, there is a one hour delay			
Ple pa	ease note that this is assword attempts,)	a monitored system. If abusive are detected, your account w	actions (trying to access locked repositories, dictionary/brute for ill be suspended.	e		
Up	oon registration, this s	ystem performs basic checks o	n your data and will then inform you of the result.			
If	you purchased our pro istomer number.	oducts through a distributor an	d therefore have no customer number, please click here to request	а		
гu	Jser Details			_		
	First name *					
	Last name *					
	Company name *					
	Email address *					
	Phone number					
	Customer number *					
	Password *		No customer number?			
	Password (verify) *					
		Register				
			Back to the login na			
				. 		

Figure 2-3: Registration form



Once you downloaded the evaluation package extract the .zip file on your hard drive to e.g.

C:\Argos3D-P100\ and read the Readme.txt first.

🚱 😔 🗢 📕 🕨 Computer 🕨 Local Disk (C:) 🕨 Arg	jos3D-P100 🕨		Search Argos3D-P100	م	
Organize ▼ Include in library ▼ Share with ▼ Burn New folder 🔠 ▼ 🗍					
\mu Argos3D-P100	Name	Date modified	Туре	Size	
 Component Manager 2.5.2 P100 PerfLogs PricelistGenerator Program Files Program Files 	application driver localibration manual PMDMDK MDNDK	13.09.2013 12:51 13.09.2013 12:51 13.09.2013 12:51 13.09.2013 12:51 13.09.2013 12:51 13.09.2013 12:51	File folder File folder File folder File folder File folder File folder		
📔 swsetup 🌆 TokensBackup	Argos3D-P100 Support Wiki	02.05.2013 16:42	Internet Shortcut	1 KB	
\mu Users	Readme.txt	21.08.2013 18:30	Text Document	1 KB	





3 Install Argos^{3D} - P100 Drivers

At the first time you have plugged in your Argos^{3D} - P100, you have to install the driver which can be found in the evaluation package.

Open the Windows Device Manager by pressing the *Windows-Button* + *Pause-Button* and choose *Device Manageras* shown in following figure.

				_ D _ X	
Search Control Panel + System and Security + System					
Control Panel Home Device Manager Kemote settings System protection Advanced system settings	View basic information Windows edition Windows 7 Professional Copyright © 2009 Microso Service Pack 1 Get more features with a n	about your computer ft Corporation. All rights reserved. ew edition of Windows 7			
See also Action Center Windows Update	System Rating: Processor: Installed memory (RAM): System type: Pen and Touch: Computer name, domain, and Computer name: Full computer name: Computer description: Domain:	Your Windows Experience Index needs to be refreshed Intel(R) Core(TM)2 Duo CPU E8400 @ 3.00GHz 3.00 GHz 4,00 GB (3,23 GB usable) 32-bit Operating System No Pen or Touch Input is available for this Display workgroup settings	() Chang	je settings	
Performance Information and Tools	Windows activation Windows is activated		ask fo		

Figure 3-1: Windows Device Manager



Once Device Manager is opened, right click "*Bluetechnix – Argos3D – P100*" in "Other Devices" and click "*Update Driver Software*".

📇 Device Manager	
File Action View Help	
(= =) 📰 🗒 🔢 🖬 🕸 🙀 🕴	5
Computer Disk drives Display adapters DVD/CD-ROM drives DVD/CD-ROM drives Floppy drive controllers Human Interface Devices IDE ATA/ATAPI controllers IEEE 1394 Bus host controllers Jungo Keyboards Mice and other pointing devices Monitors Network adapters Network adapters Network adapters Dther devices Portable Devices Ports (COM & LPT) Processors Sound, video and game controll System devices Universal Serial Bus controllers	Update Driver Software Disable Uninstall Scan for hardware changes
	Properties
Launches the Update Driver Software Wizard for t	he

Figure 3-2: Device Manager – Update Driver Software



Then choose "Browse my computer for driver software".

G I Update Driver Software - Bluetechnix - Argos 3D - P100	
How do you want to search for driver software?	
Search automatically for updated driver software Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.	
Browse my computer for driver software Locate and install driver software manually.	
	Cancel

Figure 3-3: Locate and install driver software manually



Point the driver install utility to "C:\Argos3D-P100\windows\driver" on your local hard drive. Check "Include subfolders" and click "Next".

	×
Update Driver Software - Bluetechnix - Argos 3D - P100	
Browse for driver software on your computer	
Search for driver software in this location:	
C:\Argos3D-P100\driver\windows Browse	
✓ Include subfolders	
Let me pick from a list of device drivers on my computer This list will show installed driver software compatible with the device, and all driver software in the same category as the device.	
Next	Cancel

Figure 3-4: Browse for driver software on your computer



If the Windows Security warning appears choose "Install this driver software anyway".

8 Windows Security		
\bigotimes	Window	vs can't verify the publisher of this driver software
	Do You for y	<u>n</u> 't install this driver software should check your manufacturer's website for updated driver software your device.
	Ins Only disc info	tall this driver software anyway y install driver software obtained from your manufacturer's website or . Unsigned software from other sources may harm your computer or steal rmation.
ي ا	ee <u>d</u> etails	

Figure 3-5: Driver security warning



The Update Driver Software Utility finishes the driver installation showing following Window.



Figure 3-6: Driver Software successfully installed



After successful driver installation there should be a new device in the device manager named "*Bluetechnix - Argos 3D - P100*".

<u>File Action View H</u> elp	
Computer Disk drives Diplay adapters DVD/CD-ROM drives Floppy drive controllers Human Interface Devices DIE ATA/ATAPI controllers UIE ATA/ATAPI controllers Eluctechnix - Argos 3D - P100 Keyboards Eluctechnix - Argos 3D - P100 Monitors Network adapters Network adapters Network adapters Portable Devices Portable Devices Sound, video and game controllers System devices Universal Serial Bus controllers	

Figure 3-7: Bluetechnix PMD Devices in Device Manager

Congratulations

You now have successfully installed your Argos^{3D} - P100 on your PC.



4 Start using your Argos^{3D} - P100 with "Visualizer"

When you browse to

"C:\Argos3D-P100\application\Visualizer\bin\x64" (64Bit Windows) or

"C:\Argos3D-P100\application\Visualizer\bin\x86" (32Bit Windows)

you'll find **Argos3D - P100 Visualizer.exe**. Using this software you can simply display the depth image and the amplitude image of the Argos^{3D} - P100. Mount the Argos^{3D} - P100 on the provided tripod and place it on your desk in front of you.



Figure 4-1: Sample scenario with Argos3D - P100



Figure 4-2: Visualizer GUI

Important

The default configuration of your Argos^{3D} - P100 is set to capture scenes in approximately **1.5m** with **40 frames per seconds**. For other configurations refer to the User Manual of Argos^{3D} - P100.



4.1 Working with "Visualizer"

		1
1 Connection Fps received [Hz]: 4 Disonnect Connected: Argos3D - P100, S/N 160-0001-1-000014 Fps displayed [Hz]: 4 Temp. [°C] / [°F]: 50.0 / 122 50.0 / 122 50.0 / 122	0 Frame #: 10157	5
2 Command me Command relative this is awesome Src cmd Integration time [µs]	2700 Set Get	6
3 Image display Statistics Data range (min - max) over 10 frames, at: (x, y): n.a. 4 Phase time [µs]	Set Get	7
Dist [mm] 0000 2500 Dist [mm]: n.a. 0/10 Avg: n.a. Stddev: n.a. Reg addr (hex) Amp: Amp: n.a. 0/10 Avg: n.a. Stddev: n.a. Value (dec) Value (dec)	Set Get	8

Figure 4-3: Visualizer screenshot with description

4.1.1 Connection (1)

Press the "Connect / Disconnect" button for connecting or disconnecting the sensor.

4.1.2 Applying source- and process-commands (2)

To apply source- or process-commands use the text-field from section 6 (see Figure 4-3). After the command has been entered press the "Src cmd" or the "Proc cmd" button for applying either a source- or a process-command.

For a list of source and process commands please click "command reference" and refer to our support site at <u>https://support.bluetechnix.com/wiki/Argos</u>

4.1.3 Changing the color range (3)

To adjust the color range to a certain setup or scene use the min and max text-fields in the "Image display" section (3) (see Figure 4-3). Type in the minimum distance and amplitude expected and the maximum distance and amplitude expected. The color scheme will then be expanded from red to blue for the distance image and from black to white for the amplitude image, between the selected minimum and maximum.



4.1.4 Statistics (4)

The statistics section shows the average (**Avg**) of the amplitude and the distance over a certain number of frames. In addition the standard deviation (**Stddev**) is shown. To see the statistics of a certain pixel just move the mouse over the pixel of interest (either in the distance or the amplitude window) and wait until the selected number of frames have been received. If you move the mouse the buffer is cleared.

4.1.5 Status Information (5)

The status information shows the current number of received frames per second (**fps received**), the frames drawn per second (**fps drawn**) the current frame number and the temperature of the LED-Board (**Led**).

Be aware that the frames drawn may be significantly lower than the frames received. This because the application is not able to show the frames as fast as they are delivered by the camera. It depends on the PC configuration how many frames can be processed per second.

4.1.6 Changing the integration time (6)

To change the integration time, type the integration time in μ s in the text-field and press the "set" button. To control the integration time currently set, press the "get" button.

The text-field becomes green if the operation was successful, red otherwise.

4.1.7 Changing the frame rate (7)

The frame-rate can be changed using section 7 (see Figure 4-3).

You can enter your required fps directly to the associated text field. As an alternative you can enter the required phase time.

Phase Time $[\mu s] = 1 / (4 \times fps [Hz])$

The text-field becomes green if the operation was successful, red otherwise.

4.1.8 Generic register read/write (8)

To write or read any register from the camera use section 8 (see Figure 4-3). Type in the register address as hexadecimal value and the content as decimal value, then press the "set" button.

To read a register enter the register address as hexadecimal value and press the "get" button. The register content should be shown as decimal value in the "Value" text-field.

The text-field becomes green if the operation was successful, red otherwise.



5 System Requirements & Support

An Argos^{3D} - P100 enabled application is required in order to use this Argos^{3D} - P100 device.

Connect to a system with:

- Operating System: Microsoft Windows XP/7, Ubuntu 12.04 or compatible
- 32 bit (x68) or 64 bit (x64) processor
- Dual-core 2 GHz or faster CPU
- Dedicated USB 2.0 port or USB 3.0 port
- 2 GByte RAM

5.1 Visualizer

Visualizer is available on following operating systems:

• Microsoft Windows XP/7 with .NET 3.5 or higher

5.2 LightVis

Lightvis can be used as first step example for the evaluation on Linux OS. Currently only the Ubuntu 12.04 distribution is supported. You can find LightVis in the directory "*C*:*Argos3D-P100**application**LightVis*" of the support package.

5.3 Support

For answers to common questions, troubleshooting steps and further documentation visit our Bluetechnix support website or using the direct link: <u>https://support.bluetechnix.com/wiki/Argos</u>



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