TEL/FAX.: (514) 328-7499
TOLL FREE: (844) 488-7499 (USA/CANADA)
EMAIL: support@vpixx.com
www.vpixx.com

VPixx Release Guide

Version 3.10

Table of Contents

Overview

This release guide provides installation and usage information relating to the latest VPixx Software Tool release.

VPixx Technologies Inc. reserves the right to modify or otherwise update this document without notice as required by a constantly evolving marketplace, client requests or to adapt to new progress or constraints in engineering or manufacturing technology. The information contained in this document may change without prior notice.

No part of the written material accompanying this product may be copied or reproduced in any form, in an electric retrieval system or otherwise, without prior written consent of VPixx Technologies Inc.

Product/company names mentioned in this document are the trademarks of their respective owners.

DATAPixx, DATAPixx2, DATAPixx3, PROPixx, PyPixx, RESPONSEPixx SOUNDPixx, TOUCHPixx, TRACKPixx, TRACKPixx3, TRACKPixx /mini, TRACKPixx /MRI, VIEWPixx, *VIEWPixx /3D, VIEWPixx /EEG* and *VOCAL* are registered trademarks of VPixx Technologies Inc. Python, MATLAB and any other referenced product names and/or logos are trademarks of their respective owners.

For more information about our company and products, visit our Web site at ***www.vpixx.com***

For information, comments or suggestions, please contact us by e-mail at ***support@vpixx.com***

Our offices are located at:

630 Clairevue West suite 301
Saint-Bruno, Qc
Canada, J3V 6B4

Document Icons

The use of icons emphasizes helpful, caution or warning notes. Below is a list of the available icons.

TABLE 1 – DOCUMENT ICONS

Icon	Description	Description
	Helpful Hint	Information to help out during assembly, installation or usage
	Caution Notice	Important Information to prevent misuse and/or damage to equipment
	Warning	**Critical information to prevent damage to equipment and/or injury to personnel or participants**

New firmware

DATAPixx3 Revision 22 (was 20):

- New Simulated Scotoma mode

I1Pro3 Bug Fixes

Please note that our software tools are only compatible with X-RITE devices purchased directly from VPIXX

The new I1Pro3 spectrophotometer is now supported on all operating systems and known issues have been fixed for pypixxlib as well as VPutil. It is useable with the same exact functions as the I1Pro2 (the previous version).

TRACKPixx3 Bug Fix

The previous release (version 3.9) included MATLAB files which were not compatible with revision 20 of the DATAPixx3. This has been corrected in this release.

VPixx Software Tools on Big Sur (macOS 11)

PyPixx is now compatible with OS X version 10.14 and up, including the newest Big Sur. The software tools also include VPutil and the VPixx Device Server (which are compatible 10.14 and up). As well, the LabMaestro-Simulator is included and supported on version 10.15 and up.

Software	*Minimum Mac OS Version*
PyPixx	10.14
VPutil & VPixx Device Server	10.14
LabMaestro-Simulator	10.15

Support for ADC and DAC Simple Scheduling in pypixxlib

pypixxlib now has access to functions that facilitate scheduling. This matches the MATLABs style and the following functions are available:

ADC

```
ADCdictionary =  DPxSetAdcSchedule(onSet, rateValue, rateUnits, maxScheduleFrames,
channelList = None, bufferBaseAddr = 4e6, numberBufferFrames=None)

data, timetags = DPxReadAdcBuffer(inDict, numFrames = 0, customReadAddr = None)

DPxGetAdcStatus(inDict)
```

DAC

```
nextWriteAddr = DPxWriteDacBuffer(bufferData, bufferAddress=0, channelList=None)

DACdictionary = DPxSetDacSchedule(scheduleOnset, scheduleRate, rateUnits,
maxScheduleFrames, channelList=None, bufferBaseAddress=0, numBufferFrames=None)

DPxGetDacStatus(inDict)
```

DATAPixx3 “Simulated Scotoma” Mode

A new mode on the DATAPixx3 can now be used for research. It is named the Simulated Scotoma mode; a scotoma is an area of degenerated acuity within the visual field. The Simulated Scotoma function implements a circular shape whose size and position can be programmed via software. Its position can also be tied to the screen gaze location of a subject’s left or right eye (or average of the two) as returned by the TRACKPixx3 binocular eye tracker. If a displayed pixel falls inside the simulated scotoma, then the displayed grayscale pixel is taken from the red video channel. Displayed pixels falling outside the simulated scotoma are taken from the green video channel. One typical usage might be to show a blurred image inside the scotoma, while showing an unmodified clear version of the image outside the scotoma.

This mode can be enabled and controlled via MATLAB only using the following functions:

DP3 Simulated Scotoma Routines

```
Datapixx('EnableSimulatedScotoma');
Datapixx('DisableSimulatedScotoma');
status = Datapixx('IsSimulatedScotomaEnabled');

Datapixx('SetSimulatedScotomaMode' [, mode = 0]);
mode = Datapixx('GetSimulatedScotomaMode');

Datapixx('SetSimulatedScotomaRadius' [, radius = 128]);
radius = Datapixx('GetSimulatedScotomaRadius');

Datapixx('SetSimulatedScotomaPosition' [, x = 0] [, y = 0]);
x,y = Datapixx('GetSimulatedScotomaPosition');
```

There are four modes for the simulated scotoma position:

Mode	*Mode Name*	*Description*
0	Regular Software	The simulated scotoma follows the value given to the DATAPixx3 by the *SetSimulatedScotomaPosition* function.
1	TRACKPixx3 Left Eye	Follows the screen value of the left eye position as calculated by the eye tracking algorithm of the TRACKPixx3.
2	TRACKPixx3 Right Eye	Follows the screen value of the right eye position as calculated by the eye tracking algorithm of the TRACKPixx3.
3	TRACKPixx3 Average	Follows the screen value of the average of the left and right eye position as calculated by the eye tracking algorithm of the TRACKPixx3.

The radius is a value in pixels which represents the size of the simulated scotoma. The default value is 128 pixels, and can be changed using the *SetSimulatedScotomaRadius* function.

Linux Octave 4 and 5 Support

Our Linux software tools now include the Datapixx mex file for both Octave 4 and 5. You can find this file in /usr/share/VPixx Technologies/Software Tools/DatapixxToolbox_trunk/mexdev/build/octave/linux64 after you have installed our Linux software tools.

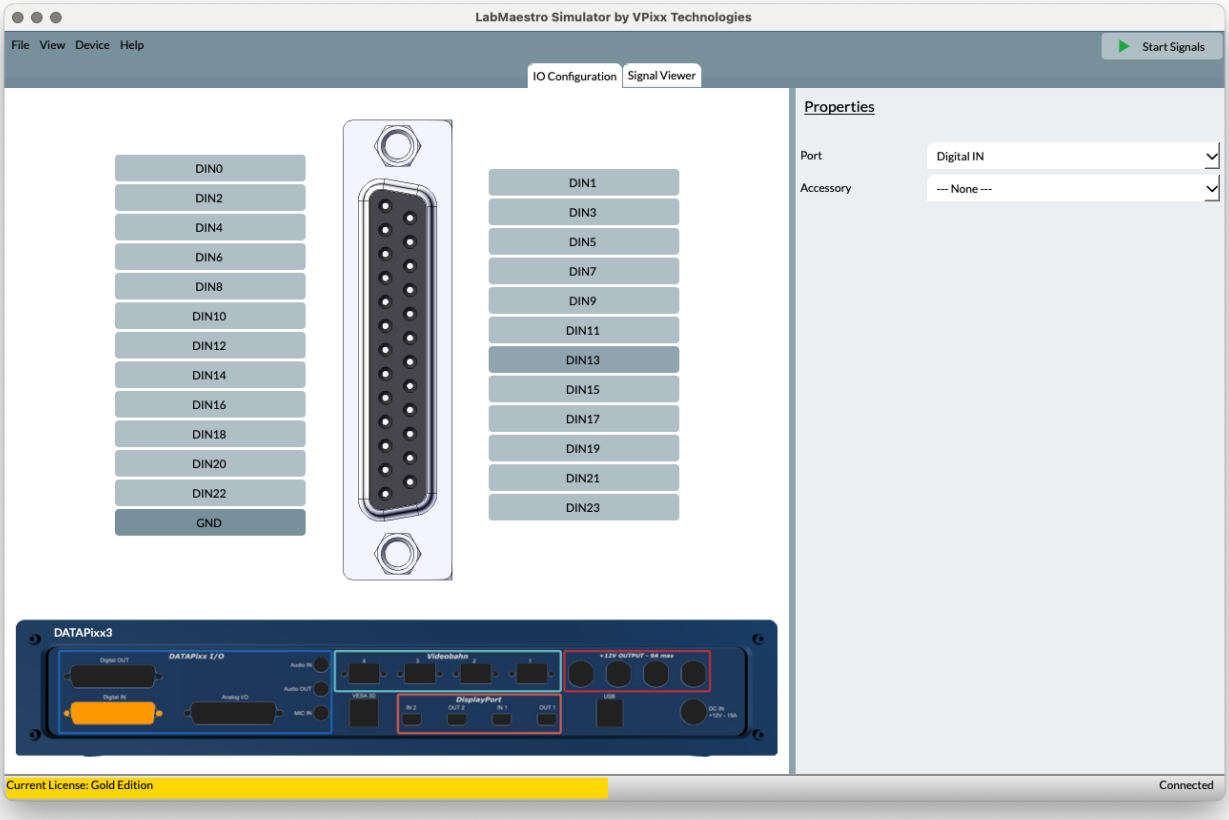
Simulator Update to 1.2

Stability update

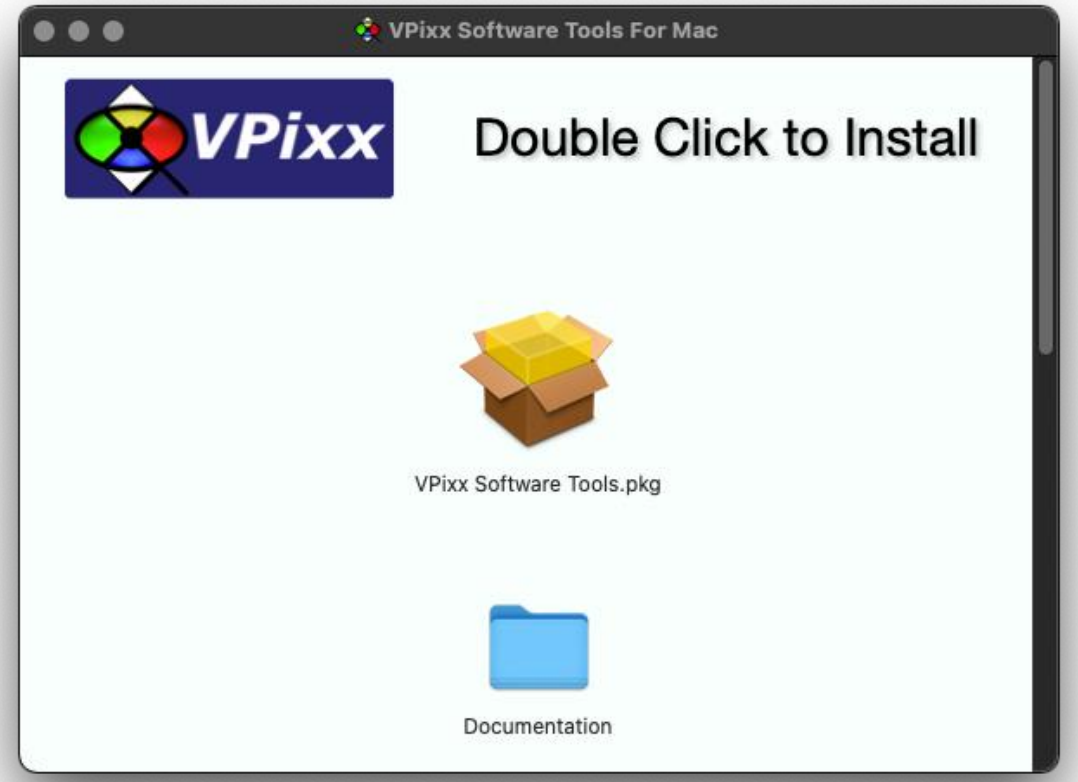
Many fixes have been made on functionalities which may have caused issues in earlier versions. With this latest version, the program seldom needs to be reset. However, if an issue does arise, it might still be needed for you to restart the VPixx Device Server as well as the simulator.

macOS Release

The LabMaestro-Simulator now releases for the Apple operating systems. It is compatible with version 10.15 and up (Catalina, Big Sur).



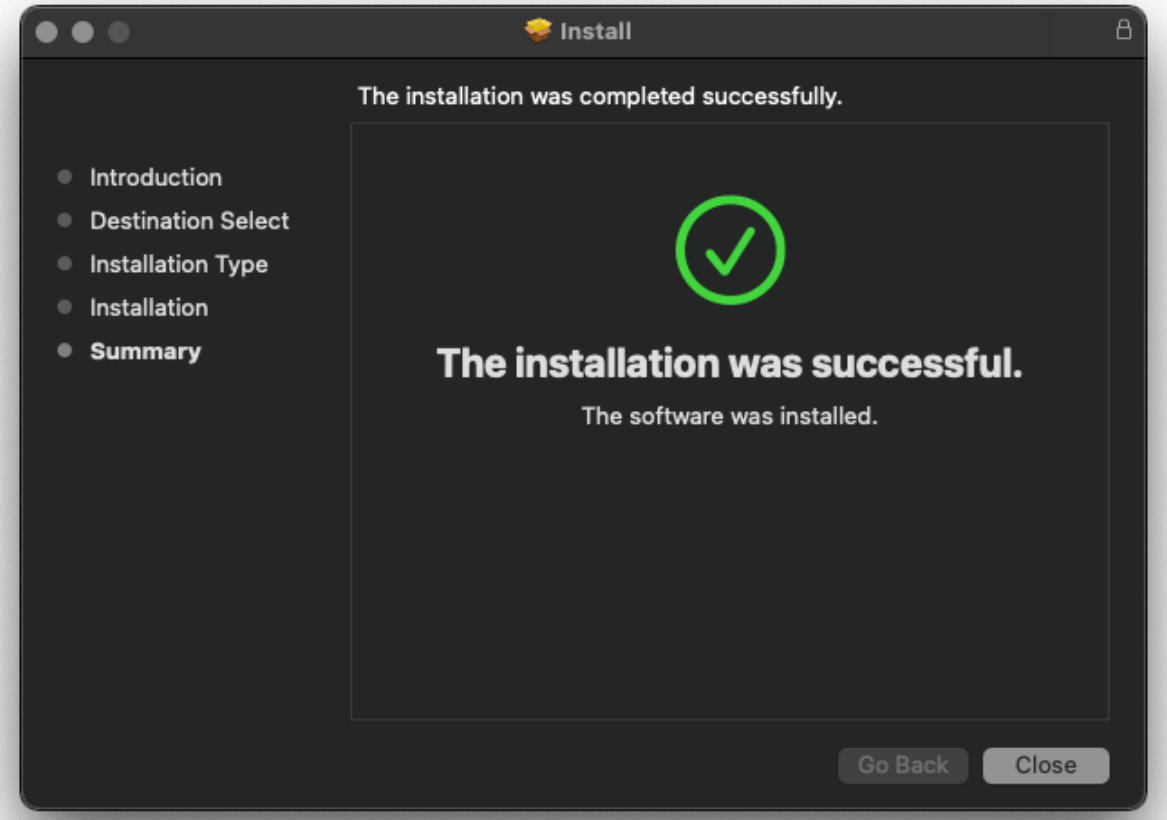
The installation process on macOS requires you to follow the instructions on screen. Double click the *VPixx Software Tools.dmg* file to open the installer:



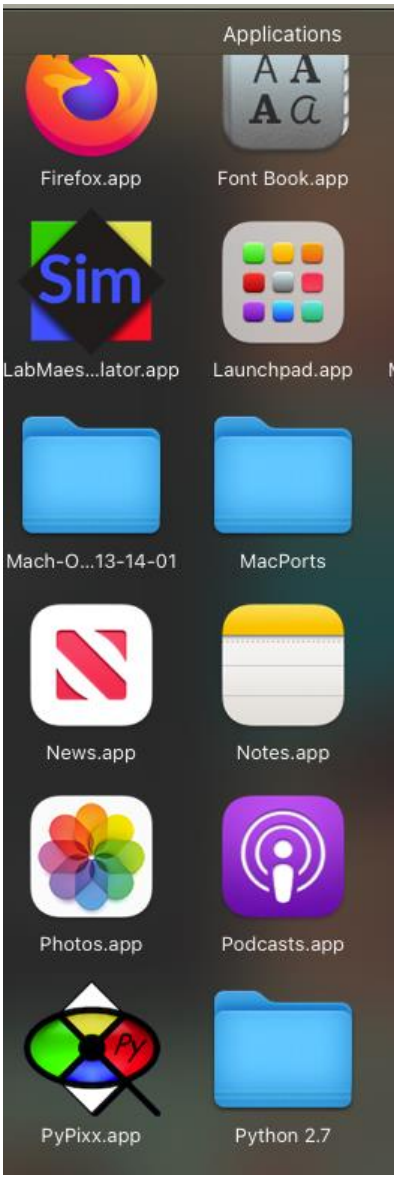
Once on this screen, you can move the documentation to a folder of your choice and double click on *VPixx Software Tools.pkg* to start the installation process. The installation will require your administrative password as well as warn you that the installer would like to administer your computer.

This is required to install our software tools as well as start the VPixx device server as a service. The installer does not ACCESS or MODIFIES your password, networking or system settings.

Once the installation completes, the success screen is shown.



You can now access all the software tools via the Application folder. Software tools files are found in /Library/Application Support/VPixx Technologies.



Pixel Mode & Loopback Interaction Bug Fix

An interaction when a digital loopback is enabled while in Pixel Mode has been fixed to match the behavior of a real device (Loopbacked digital input values now access Pixel Mode values first, if Pixel Mode is enabled, followed by the digital output schedule, and lastly the register values of the digital output. This is the behaviour of physical VPixx hardware).

REPONSEPixx Hotkey for macOS and Linux

When you select a RESPONSEPixx to simulate, you can trigger the button presses using the numpad. This is done as follows:

4-5 buttons

Buttons	*Shortcut*
Red	CTRL + Numpad 6
Yellow	CTRL + Numpad 8
Green	CTRL + Numpad 4
Blue	CTRL + Numpad 2
White	CTRL + Numpad 5

10 buttons

Buttons	*Shortcut*
Red	CTRL + Numpad 0
Yellow	CTRL + Numpad 1
Green	CTRL + Numpad 2
Blue	CTRL + Numpad 3
White	CTRL + Numpad 4
Red	CTRL + Numpad 5
Yellow	CTRL + Numpad 6
Green	CTRL + Numpad 7
Blue	CTRL + Numpad 8
White	CTRL + Numpad 9

ADC and DAC Improvements

The ADC and DAC schedules have been improved to match the behavior of a real device. The timetags now match the device time, which is the time in seconds since the device has been started, instead of the time when the schedule was started. We have also added passive signal viewer updating, to show the current values of the ADC and DAC without requiring normal device updates.