Quarch Technology Ltd

AN-022

Application Note

QPS automation with FIO

For use with:

**XLC Power Modules  
HD Power Modules**

**Quarch Power Studio (QPS)**



# Change History

|  |  |  |
| --- | --- | --- |
| 1.0 |  | Initial Release |
| 1.1 | Feb 2019 | Updated to Python 3.x |
| 1.2 | May 2019 | Updated for quarchpy 2.x |
| 1.3 | November 2022 | Updated descriptions and instructions |
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# Introduction

Simple automation allows us to capture data from a power module into a CSV file, and post process it to gain more information.

In this example we will capture data at a fast rate then re-sample it to several different slower rates to see how min and max values change at higher averaging levels.

This requires a Quarch PPM or PAM and the quarchpy python package

# Modules Supported

XLC power modules

* QTL1824 (QTL1824-02A modules do NOT support streaming, but can be upgraded by Quarch)
* QTL1847

HD power modules

* QTL1995
* QTL1999

PAM modules

* QTL2312

# System Supported

This example is written and tested on Windows, though could be used on MacOS and Linux as long as FIO is installed.

It currently requires Python 3.x

## Application Note Example Files

The **AN-022.zip** should be extracted to your preferred location.

|  |  |
| --- | --- |
| PowerExample.py | Main python file to execute |

# 

# Installation and setup

## Python install

If you do not already have Python 3.x installed, download and install it from:

<https://www.python.org/downloads/>

Under Windows it is helpful to make sure the Python installation directory and PythonXX\Scripts are included in the PATH environment variable. See:

## [https://docs.python.org/3/using/windows.html#excursus-setting-environment-variables](https://docs.python.org/3/using/windows.html" \l "excursus-setting-environment-variables)

## QuarchPy library install

The Quarch Python package can be installed from the Python web repository (assuming you have internet access) or via the download from our website.

Quarchpy will also install a version of Quarch Power Studio

### Web Install

From the command line:

**>pip install quarchpy**

If this fails, your path to “pip” may not be set, you can instead run:

**>python –m pip install quarchpy**

### Local Install

If you want to install from a downloaded folder, ensure the folder is unzipped to a local disk, navigate to the folder containing the setup.py file and run (noting the ‘.’ on the end):

**>pip install quarchpy .**

If this fails, your path to ‘pip’ may not be set, you can instead run:

**>python –m pip install quarchpy .**

### Upgrade

If you already have QuarchPy installed, you will get a failure message. If you want to upgrade to a new version, you need to add the ‘--upgrade’ command:

**>pip install --upgrade quarchpy**

The --upgrade command can similarly be used in any of the other examples, to load from a local install folder.

## Java install

Check that the Java is installed. This can be Oracle Java8, OpenJDK-8 or Coretto-8

See our Java guide here  
<https://quarch.com/support/faqs/java/>

## Power module setup

Connect the power module to the test PC and the output of the power module to the drive under test.

Customer Drive

USB/LAN Connection

Power Module

Customer Test PC

# Running the example

Run PowerExamples.py

* You will be prompted to select the Quarch power module you want to connect to.
* The script should now run to completion which will take a few seconds
  + The capture time can be edited by changing the range(5) command after the startStream() call
* The output will be 4 files
  + The raw captured data
  + Post processed data to 100uS averaging
  + Post processed data to 500uS averaging
  + Post processed data to 1mS averaging
* Each file will contain the resampled data and a simple MIN/MAX/AVE statistic set at the bottom