USER MANUAL

About the DP832 PSU Controller Application

The DP832 PSU Controller Application is a software tool for reading, setting and visualizing all channel settings such as voltage and current as well as the OCP and OVP settings. Learning to use this application is very easy if the user is familiar with the device and the terms of any power supply device. This user guide presents an overview of the application's features and provides instructions for using the different of functionalities.

System Requirements

In order to use the application, please make sure your computer meets these following system requirements.

- Operating System: Linux (developed and tested in Ubuntu 16.04)
- Python 3
- Pip3
- PyQt5
- Matplotlib
- MySQL Database
- MySQL Connector

Installation Instructions

To install this project, you need to have python 3 installed into your machine.

- To install pip3:
```
sudo apt-get -y install python3-pip
```

- To install PyQt5:
```
pip3 install --user pyqt5
sudo apt-get install python3-pyqt5
sudo apt-get install pyqt5-dev-tools
sudo apt-get install qttools5-dev-tools
```

- To install Matplotlib:
```
sudo pip3 install matplotlib
```

- To install MySQL:
```
sudo apt-get update
sudo apt-get install mysql-server
mysql_secure_installation
```

- To install MySQL Connector:
```
pip3 install mysql-connector-python
```

- Give permission to access the USB port that is connected to the device. Example:
```
Sudo chmod 777 /dev/usbtmc0
```

- If your USB port path is not /dev/usbtmc0, please change the path in the code:

In Channel.py class in line 21:

```
def mywrite(self, message):
        self.fpwrite = open("newUSBpath", "w")
        …
```

In Channel.py class in line 30:

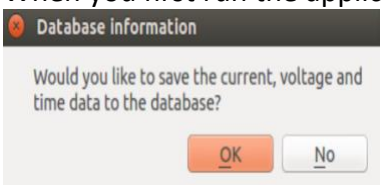
```
def myread(self, n):
        try:
                self.fpread = open("/dev/usbtmc0", "r")
                …
```

Launching the application

To launch the application, you need to run *WindowManager.py* using python3, which will open the GUI and from then you can use the application.

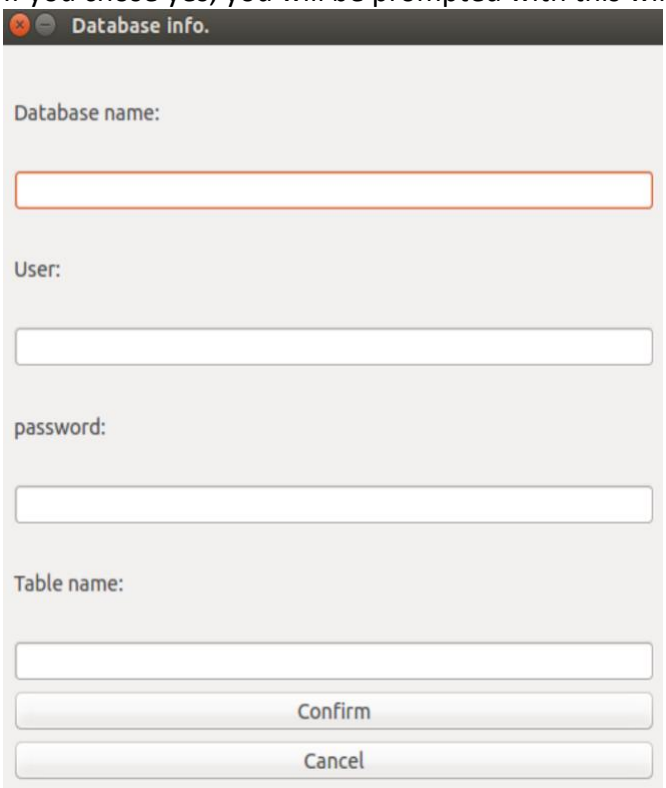
Accessing the Database

When you first run the application, you will be prompted with the following:



To access the database in order to store the settings for each channel, you need to answer accordingly.

If you chose yes, you will be prompted with this window:



In which you can fill the database credentials (Database name, Username, Password, and Table name). After you click on the *Confirm button*, the readings for the channels will be added to the table accordingly. Then you will be taken to the main GUI.

Note: If the user has entered their database credentials previously, they will not be prompted with this window.

Note that the table columns are as follows:

- Current: double
- Voltage: double
- Channel: int
- Time: datetime

Exploring the GUI

The GUI displays the controls and readings for all three channels of the DP832 Power Supply Device.

- **To upload a preset file**, click *Browse* then choose the .txt file with the preset values you want.

- **To switch 1 or more channels at once**, select the check box of the channels you want to be ON then click *Switch ON/OFF* button.
- **To change or set values of a channel**, see section *Settings* of each channel.
    - State: use the check box to make the channel ON or OFF.
    - Voltage: use the spin box to select the voltage value of the channel.
    - Current: use the spin box to select the current value of the channel.
- **To change of set values of the Overvoltage Protection or Overcurrent Protection**:
    - State: use the check box to make the OCP or OVP ON or OFF. (Note that if you change the state of OCP/OVP for one channel, it will be changed for all three channels)
    - Voltage: use the spin box to select the OVP value of the channel.
    - Current: use the spin box to select the OCP value of the channel.
- **To set all changes to channel settings**, click *Set*.
- **To view the readings of the channels**, see *Readout* section.
- **To save the manually entered channel settings into a file for future use**, click *Save As Preset*.
- **To view the plot showing changes of the Current over time**, click *View Plot* button.