SliderBAR

Technical REFERENCE

# Motorized fader-based keyboard slider with an advanced controller

**Features**

* **Motorized fader composed of a linear potentiometer and a belt and pulley system to move the fader**

Figure 1. Motorized fader

* **Open hardware and source**
* **USB Powered (USB Mini B connector)**
* **Desktop configuration GUI**
* **Programmable plugins**
* **USB CDC Virtual Serial Port for plug-n-play on any PC**

**Hardware specifications**

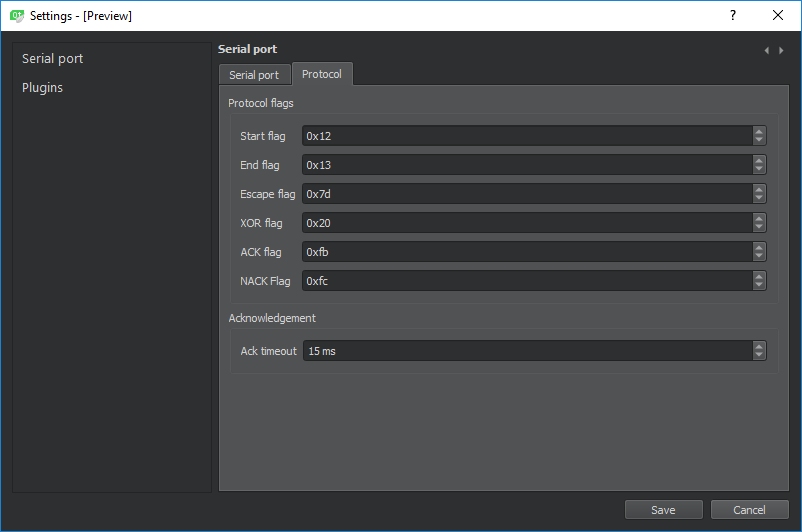
* **USB Mini B connector**
* **STM32F072C8Tx MCU**
* **5-pin ST-Link V2 programming interface**
* **5V to 3.3V regulator (MIC5205-33)**
* **5V to 10V boost converter (MT3608) with trimmable potentiometer**
* **TB6612FNG motor driver (max 1.2 A)**
* Pin headers for debug, motor out, and potentiometer in

Figure 2. Configuration window

**Software specifications**

* **Desktop side:**
  + **Written in C++ with Qt for the GUI**
  + **IDE: Qt Creator**
  + **Base application allows user to manage settings, connect, load plugins and set activators for each plugin**
  + **Base application does nothing, the plugins parse the slider’s input**
  + **Each plugin receives the SliderBar’s position and can use the app’s API to execute actions**
* **Embedded side:**
  + **Written in C++ with STM32CubeHal**
  + **IDE: Visual Studio Code with PlatformIO**
  + **Lightweight communication protocol.**

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## Introduction

### Description

#### https://dhd.audio/wp-content/uploads/2016/07/14315_y4261b_1.jpgGeneral description

The SliderBar is a keyboard slider that mounts to or sits near your keyboard. It is based on a motorized fader originally used in Audio mixer tables (See Figure 3).

Figure 3. 52-4261B Motor Fader Module

## Hardware

## Software

## Electrical characteristics

### Typical values

Unless otherwise specified, typical data are based on 25 °C, 5V.

### Operating conditions

#### General operating conditions

Table 1. General operating conditions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Symbol | Parameter | Conditions | Min | Typical | Max | Unit |
|  | Programming operating voltage | - | 3.5 | 5 | 10 | V |
|  | USB supply voltage | - | 4.75 | 5 | 5.25 | V |

#### Supply current characteristics

The current consumption is a function of several parameters and factors such as microcontroller state (run, sleep) and motor state (full speed, stop).

The current consumption is measured using a cheap USB Voltmeter. See Figure 4.

Figure 4. USB Voltmeter

Table 2. Supply current characteristics

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Symbol | Parameter | Conditions | Min | Typical | Max | Unit |
|  | Programming operating voltage | - | 3.5 | 5 | 10 | V |
|  | USB supply voltage | - | 4.75 | 5 | 5.25 | V |

## Revision history