PL2303-USB

VOTOL Controller USB Data Cable Instruction Manual

Model: PL2303-USB for EM30, EM50, EM80, EM100, EM150, EM180S Series

1. Introduction

This instruction manual provides essential information for the proper use and configuration of the VOTOL Controller USB Data Cable. This cable is designed to facilitate parameter adjustment and programming for specific VOTOL motor controller models, ensuring optimal performance and customization of your motor system.
The cable features a PL2303 chipset for reliable data communication between your computer and the VOTOL EM series motor controllers, including EM30, EM50, EM80, EM100, EM150, and EM180S.

2. Compatibility

This USB Data Cable is specifically compatible with the following VOTOL motor controller series:

- VOTOL EM30 Controller
- VOTOL EM50 Controller
- VOTOL EM80 Controller
- VOTOL EM100 Controller
- VOTOL EM150 Controller
- VOTOL EM180S Controller

3. Setup

3.1 Driver Installation

The cable utilizes a PL2303 chipset. Typically, modern operating systems will automatically install the necessary drivers upon first connection. If automatic installation fails, please download and install the appropriate PL2303 driver from the Prolific Technology website or your controller manufacturer's support page.

3.2 Hardware Connection

1. Connect the USB end of the data cable to an available USB port on your computer.
2. Connect the other end of the data cable to the designated programming port on your VOTOL motor controller. Ensure a secure connection.

3.3 Software Installation and Launch

Obtain the official VOTOL motor controller configuration software from the manufacturer. Install the software on your computer following the provided instructions. Once installed, launch the application.

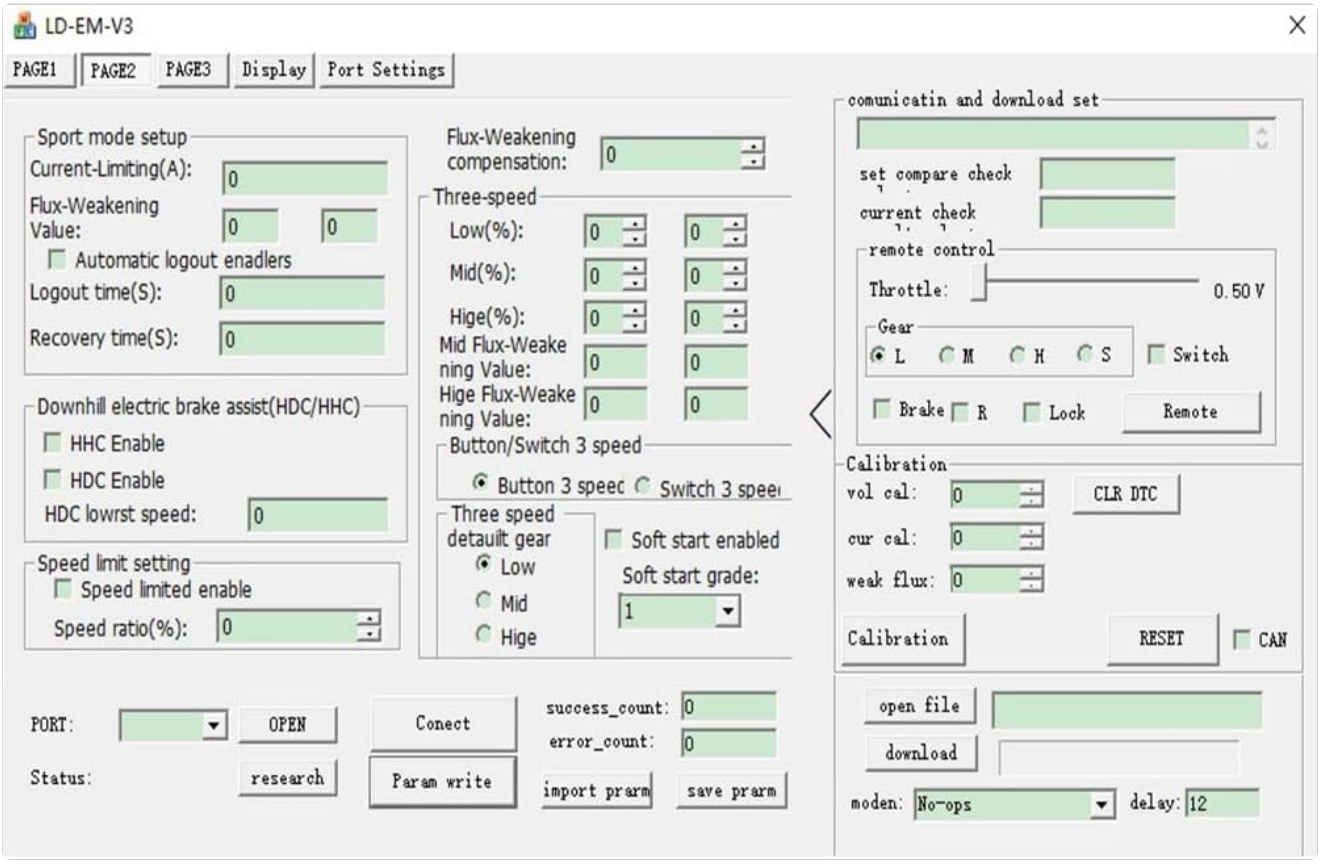

Figure 1: VOTOL Controller USB Data Cable (Physical Product)

This image shows the physical VOTOL Controller USB Data Cable, featuring a black cable with a blue USB connector on one end and a specialized connector for the VOTOL controller on the other.

4. Operating Instructions

After successfully connecting the cable and launching the software, you can begin adjusting controller parameters. The software interface typically features several tabs for different configuration aspects.

4.1 Establishing Connection

1. In the software interface, locate the 'PORT' dropdown menu. Select the correct COM port assigned to your USB data cable.
2. Click the '**OPEN**' button to open the selected port.
3. Click the '**Connect**' button to establish communication with the VOTOL controller. The 'Status' field should indicate a successful connection.

4.2 Parameter Adjustment Overview

The software allows you to read, modify, and write parameters to the controller. Use the**Param write**' button to save changes to the controller. You can also '**import param**' or '**save param**' to manage configuration files.

4.3 Configuration Tabs

The software typically organizes settings into various tabs. Below are descriptions of common tabs and their

functions:

4.3.1 PAGE1: Sport Mode & Speed Settings

This tab allows configuration of performance-related parameters.

- **Sport mode setup:** Adjust current limiting and flux-weakening values.
- **Three-speed:** Configure low, mid, and high-speed settings, including flux-weakening for each.
- **Downhill electric brake assist (HDC/HHC):** Enable or disable these features and set lowermost speed.
- **Speed limit setting:** Define speed limits and speed ratios.

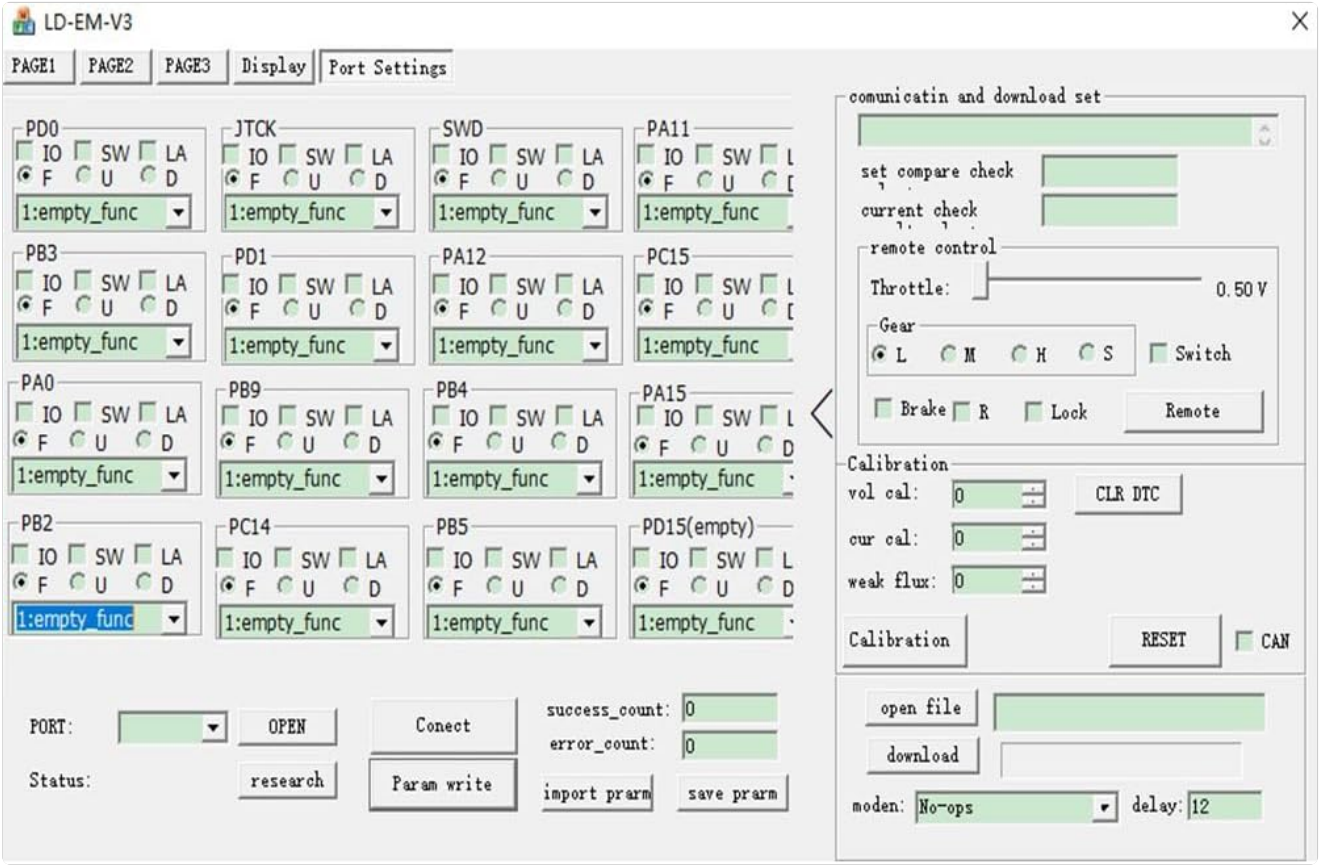

Figure 2: Software Interface - PAGE1 (Sport Mode & Speed Settings)

This image displays the 'PAGE1' tab of the VOTOL controller software, showing input fields and checkboxes for configuring sport mode parameters, current limiting, flux-weakening, three-speed settings, downhill electric brake assist (HDC/HHC), and speed limit settings.

4.3.2 PAGE2: Motor Settings

This tab is dedicated to motor-specific configurations.

- **Motor Setting:** Configure pole pairs, exchange hall wire color, exchange phase wire color, and motor type (surface-mount/V-type).
- **Out-put:** Select output type (One-Lin, Hall speedometer) and configure moving vehicle booster and cruise control.
- **EBS ratio:** Adjust the Electronic Braking System ratio.
- **Temperature protection:** Set initial temperature, over-temperature, and maximum temperature thresholds.

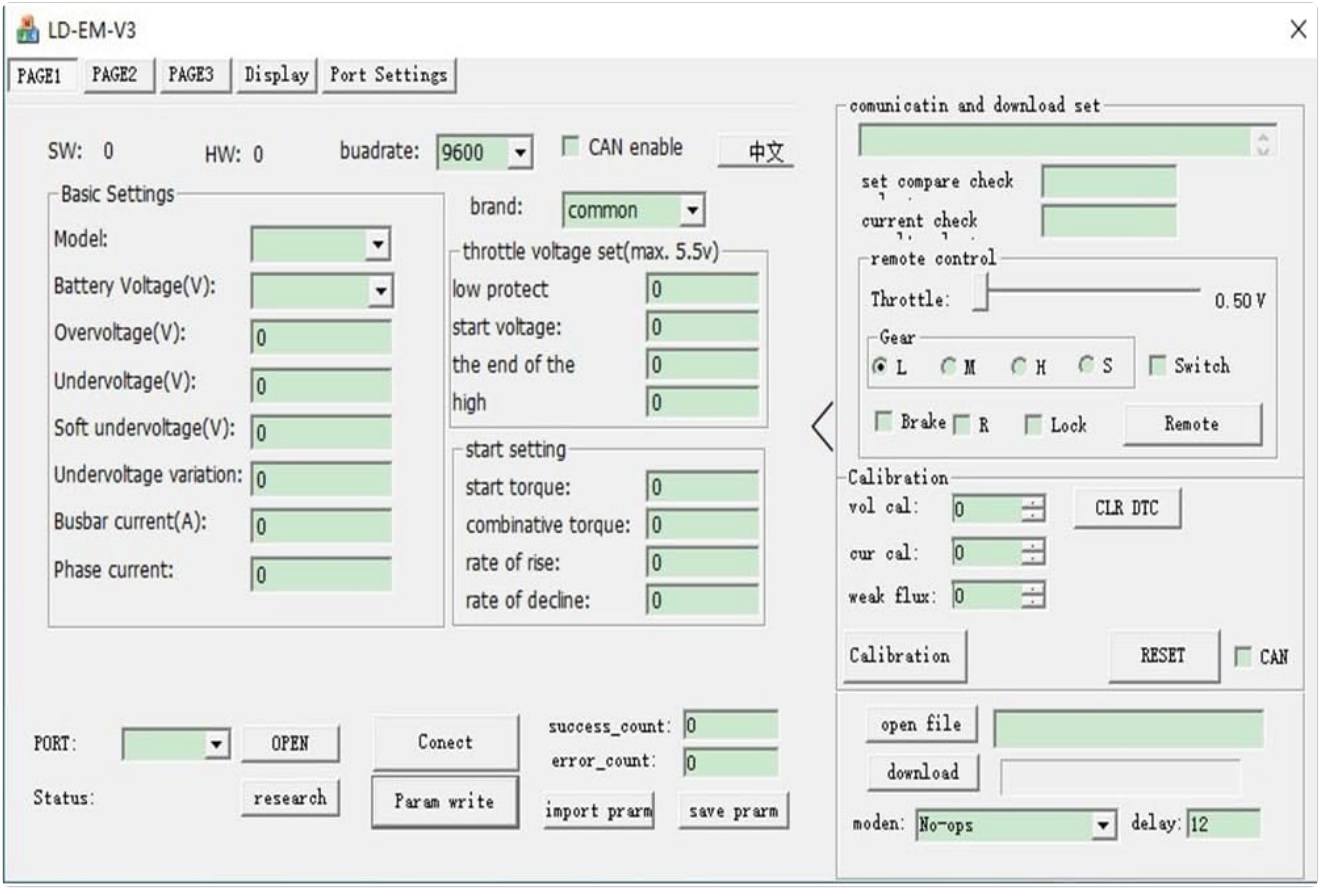

Figure 3: Software Interface - PAGE2 (Motor Settings)

This image shows the 'PAGE2' tab of the VOTOL controller software, presenting options for motor settings such as pole pairs, wire color exchange, motor type, output configurations, EBS ratio, and various temperature protection parameters.

4.3.3 PAGE3: Basic Settings

This tab contains fundamental controller settings.

- **Basic Settings:** Select controller model, set battery voltage, overvoltage, undervoltage, and soft undervoltage thresholds.
- **Busbar current(A) & Phase current:** Input current limits.
- **Throttle voltage set (max. 5.5V):** Configure low protect, start voltage, and end of high voltage.
- **Start setting:** Adjust start torque, combinative torque, rate of rise, and rate of decline.

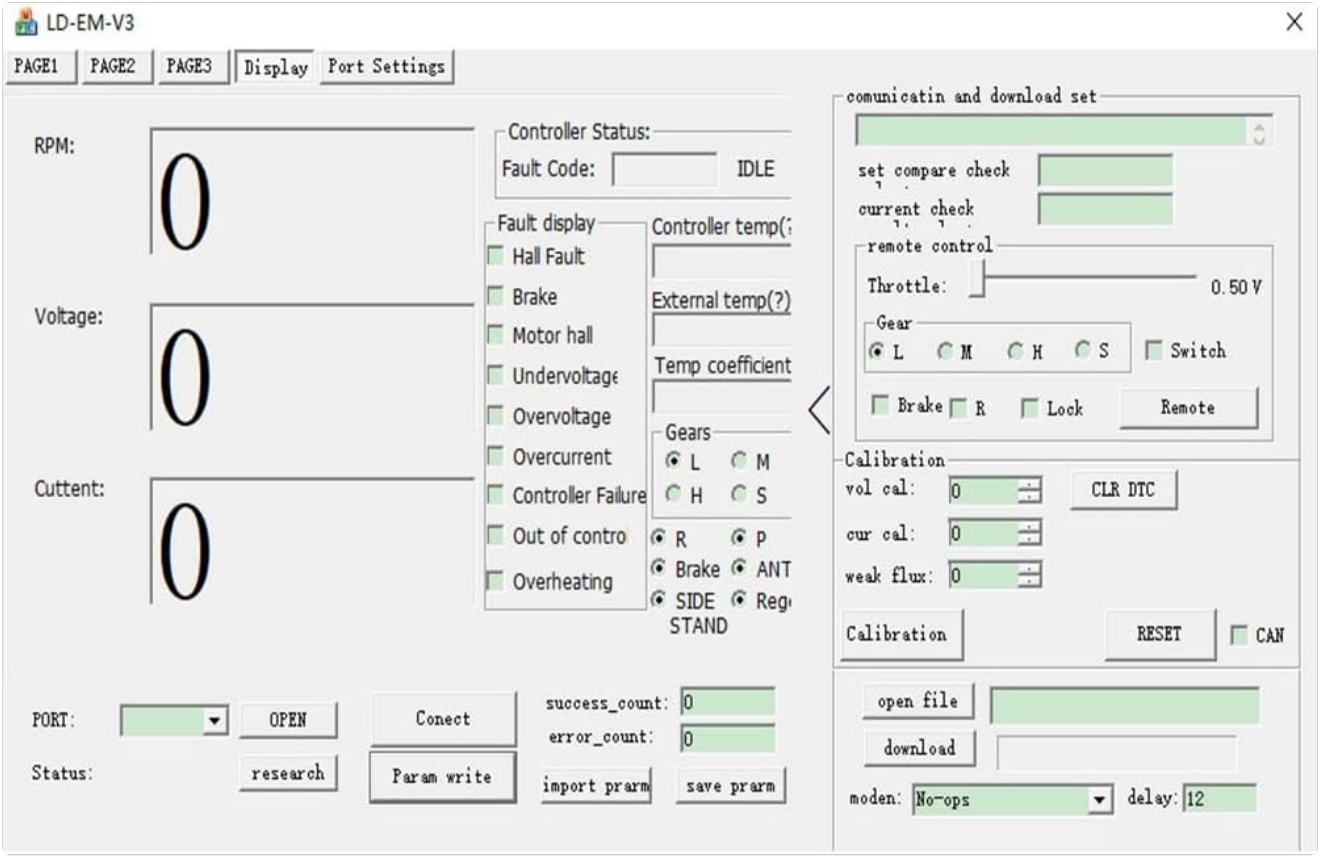

Figure 4: Software Interface - PAGE3 (Basic Settings)

This image illustrates the 'PAGE3' tab of the VOTOL controller software, displaying fields for basic settings including controller model selection, battery voltage parameters, current limits, throttle voltage configuration, and motor start settings.

4.3.4 Display: Real-time Monitoring

This tab provides real-time feedback from the controller.

- **RPM, Voltage, Cuttent:** Displays real-time motor revolutions per minute, voltage, and current.
- **Controller Status:** Shows the current operational status and any fault codes (e.g., IDLE, Hall Fault, Brake, Motor hall, Undervoltage, Overvoltage, Overcurrent, Controller Failure, Out of control, Overheating).
- **Controller temp(?), External temp(?):** Displays temperature readings.

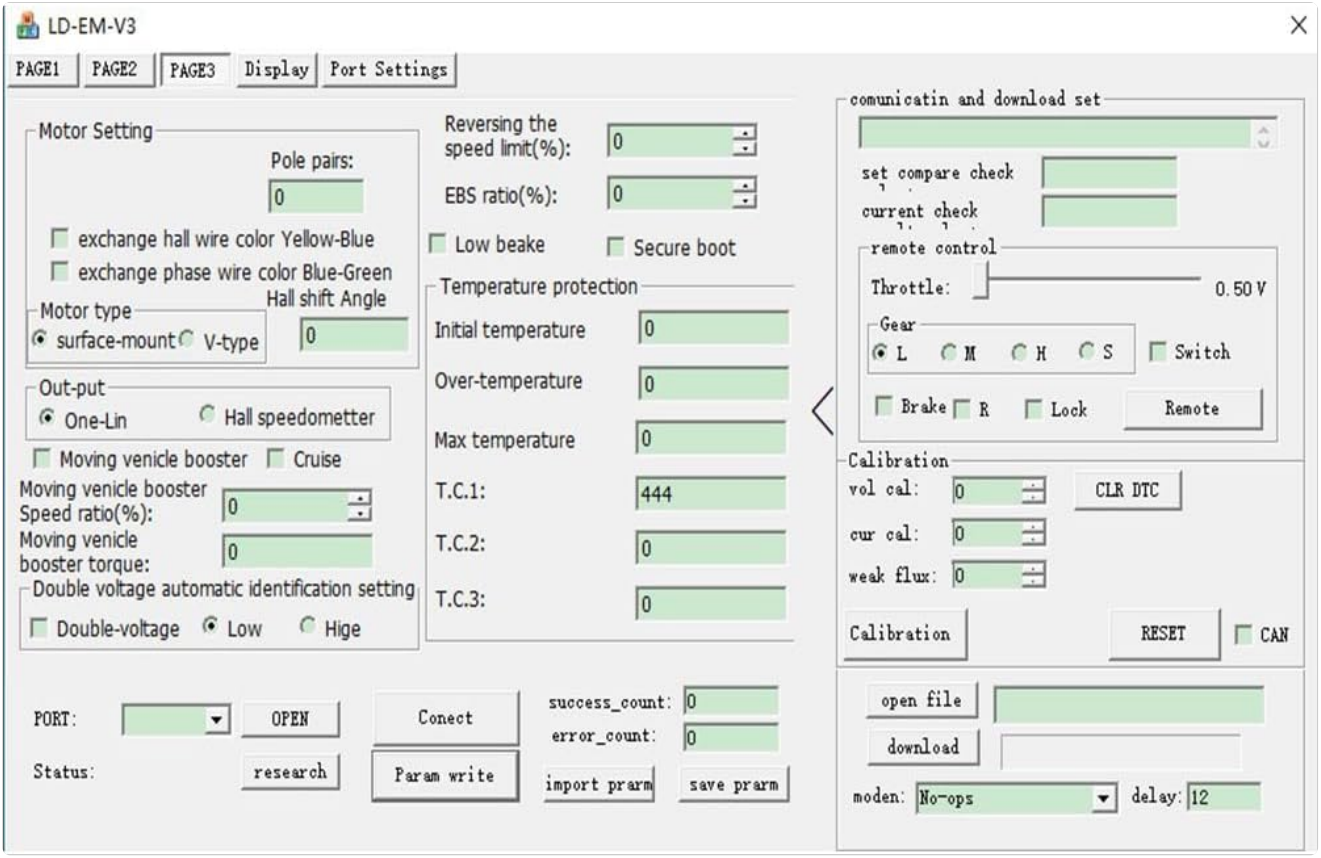

Figure 5: Software Interface - Display (Real-time Monitoring)

This image presents the 'Display' tab of the VOTOL controller software, showing real-time data such as RPM, Voltage, and Current, along with controller status indicators and fault codes for diagnostic purposes.

4.3.5 Port Settings

This tab allows advanced configuration of communication ports.

- **SW, HW, buadrate:** Displays software and hardware versions, and allows setting the baud rate.
- **CAN enable:** Option to enable CAN communication.
- **Pin Function Configuration:** Detailed settings for various pins (e.g., PD0, PB3, PA0, PB2, JTCK, SWD, PA11, PA12, PC15, PB9, PB4, PA15, PC14, PB5, PD15) to assign specific functions.

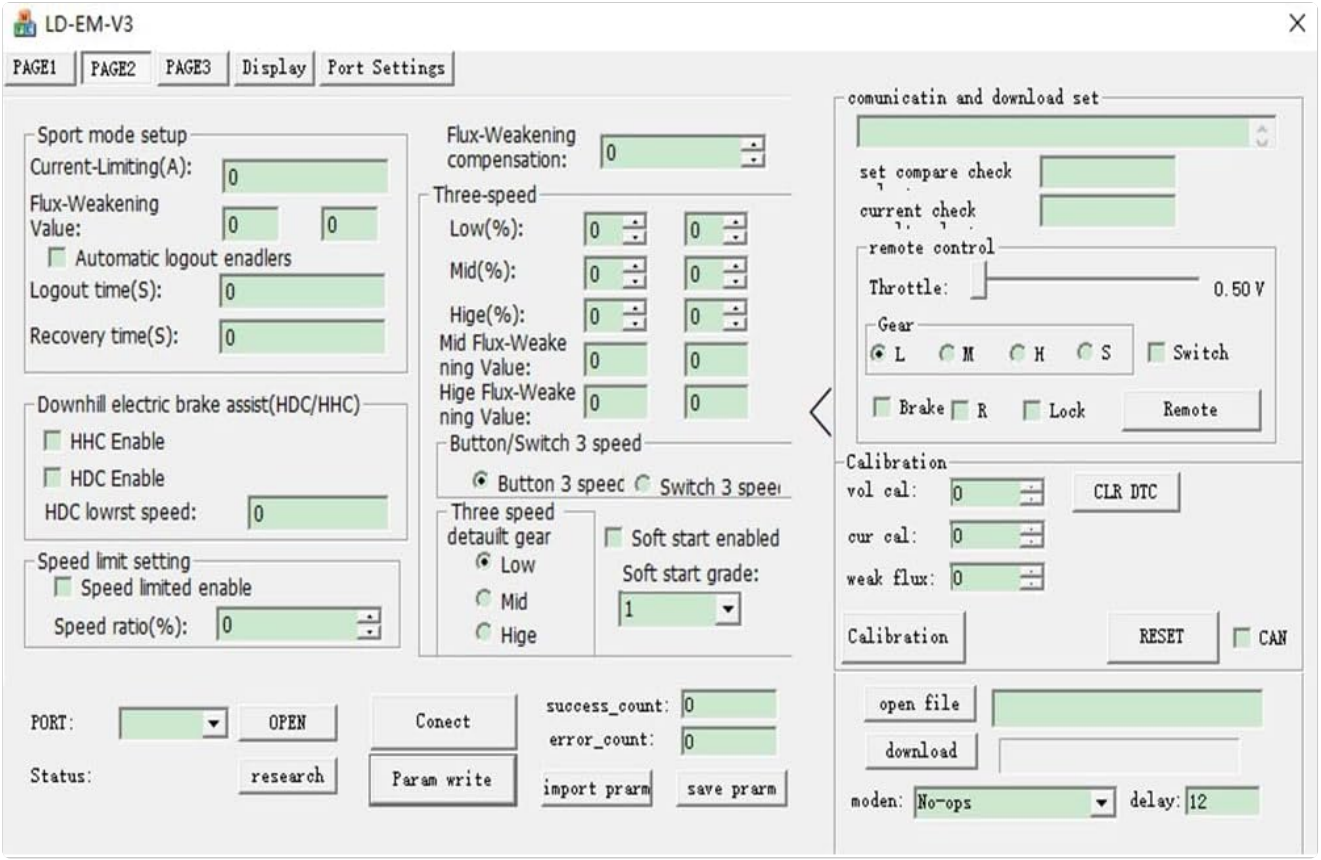

Figure 6: Software Interface - Port Settings

This image shows the 'Port Settings' tab of the VOTOL controller software, providing advanced configuration options for communication parameters, including baud rate, CAN enable, and detailed pin function assignments for various controller ports.

5. Maintenance

To ensure the longevity and reliable operation of your USB data cable:

- Store the cable in a clean, dry environment away from direct sunlight and extreme temperatures.
- Avoid bending or kinking the cable excessively, as this can damage internal wires.
- Do not expose the cable to moisture or corrosive substances.
- Handle connectors carefully to prevent damage to pins or housing.

6. Troubleshooting

Problem	Possible Cause	Solution
Cable not recognized by computer	Missing or incorrect PL2303 driver. Faulty USB port. Damaged cable.	Install/update PL2303 drivers. Try a different USB port. Test cable on another computer if possible.
Software cannot connect to controller	Incorrect COM port selected. Controller not powered on. Loose cable connection. Incompatible software version.	Verify COM port in device manager. Ensure controller is powered. Re-seat cable connections. Use the correct software version for your controller.

Problem	Possible Cause	Solution
Parameters not saving to controller	Connection lost during write. Insufficient permissions. Software error.	Ensure stable connection. Run software as administrator. Restart software and controller.

7. Specifications

- **Model Number:** PL2303-USB
- **Chipset:** PL2303
- **Compatibility:** VOTOL EM30, EM50, EM80, EM100, EM150, EM180S Controllers
- **Interface:** USB
- **Material:** Copper, Plastic
- **Color:** Black and Blue
- **Voltage:** 5 volts (USB powered)
- **Product Dimensions:** 48"L x 0.5"W x 0.5"H (approximately 122 cm x 1.27 cm x 1.27 cm)
- **Item Weight:** 0.2 kg (approximately 7 oz)

8. Warranty Information

For specific warranty details regarding this product, please refer to the information provided by your retailer or the manufacturer at the time of purchase. Warranty terms may vary based on region and seller policies.

9. Support

If you encounter issues not covered in this manual or require further assistance, please contact the seller or the manufacturer's customer support. Ensure you have your product model number and purchase details available when seeking support.