

# OPERATING MANUAL

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for  
SkySwitch Pro



Please read this manual  
carefully before use



[www.skyswitchpro.com](http://www.skyswitchpro.com)

Version 1.0 | May 2026

<b>1. Introduction</b>	<b>3</b>
1.1 About SkySwitch Pro	3
1.2 Main Functions	3
1.3 Main Connections	3
<b>2. Device Overview</b>	<b>4</b>
2.1 Device Layout	4
2.2 LED indicators	4
<b>3. SkySwitch Pro Software</b>	<b>5</b>
3.1 Software installation	5
3.2 First Launch	5
3.2.1 Hardware Connection	5
3.2.1 Software	6
3.3 Main Screen and Functions	8
3.3.1 Tab Status	8
3.3.2 Tab Config	9
3.3.3 Tab Charts	11
3.3.4 Tab About	12
<b>4. Normal Operation</b>	<b>13</b>
4.1 Daily Startup	13
4.2 Mount ON/OFF Control	13
4.3 Using Weather Data for 10Micron Refraction Support	13
4.4 Weather Statistics Logging	14
4.5 GPS Status and LED Indication	14
4.6 Dark Mode	14
<b>5. Technical Specifications</b>	<b>15</b>



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## 1. Introduction

### 1.1 About SkySwitch Pro

SkySwitch Pro is a compact support device designed for 10Micron mounts equipped with the V3 controller. It combines three important functions in one unit: remote mount ON/OFF control, environmental data support, and GPS support.

The device is intended to make remote observatory operation easier, safer, and more precise. It allows the user to check the mount status, switch the mount on or off from the SkySwitch Pro software, and provide the mount with useful weather, location, and timing information.

Weather and GPS data are important for getting the best performance from a high-precision 10Micron mount. Current atmospheric conditions may be used for refraction compensation, while GPS data supports accurate location and time information required by the mount.

SkySwitch Pro is connected to the control computer via USB. The connection to the mount is made through the dedicated AUX cable supplied with the device.

### 1.2 Main Functions

SkySwitch Pro provides the following main functions:

- Remote ON/OFF control of the 10Micron mount
- Mount power state monitoring
- Temperature, humidity and pressure measurement
- Dew point calculation
- GPS data support
- USB communication with the SkySwitch Pro software
- LED status indication on the device enclosure

The remote ON/OFF function is the primary control function of the device. SkySwitch Pro generates a controlled switching pulse that allows the mount to be turned on or off without physical access to the observatory.

The weather monitoring function measures the current observing environment and can provide atmospheric data useful for accurate refraction compensation. This helps the mount work with real conditions at the observing site.

The GPS function provides location and timing support. Combined with live weather data, it helps the mount operate with the information required for precise pointing and tracking.

### 1.3 Main Connections

- AUX cable — connection to the 10Micron mount
- GPS cable — connection to the 10Micron mount
- USB cable — connection to the control computer

The AUX cable is supplied already prepared and preinstalled for the correct mount connection.

## 2. Device Overview

### 2.1 Device Layout

SkySwitch Pro is designed as a compact interface device for remote observatory operation. The main connectors are located on the front side of the enclosure, while the status LEDs and the BME280 sensor ventilation openings are located on the top side. The numbered elements shown in the device overview image are described below.

1. USB-B socket
2. Pre-installed AUX cable
3. GPS socket
4. Device status LED
5. GPS status LED
6. ON/OFF Pulse LED
7. Sensor ventilation openings



### 2.2 LED indicators

SkySwitch Pro has three LED indicators located on the top side of the enclosure.

The device status LED indicates that SkySwitch Pro is powered and operating. When this LED is on, the device is active and ready for communication with the SkySwitch Pro software.

The GPS status LED indicates the current GPS state. The LED flashes blue while the GPS module is searching for its position. When the geolocation has been established, the LED remains continuously on.

The ON/OFF pulse LED turns on only when SkySwitch Pro generates the controlled switching pulse used to turn the mount on or off. The pulse duration is approximately 2 seconds. During normal operation this LED remains off.

## 3. SkySwitch Pro Software

### 3.1 Software installation

The SkySwitch Pro software installer can be downloaded from the Support section of the SkySwitch Pro website: <https://skyswitchpro.com/index.php/support/>

Download the latest available version of the installer and save it on the control computer used for observatory operation.

Run the installer and follow the on-screen instructions. During installation, Windows may display a security warning if the application installer is not digitally signed. In this case, confirm that the installer was downloaded from the official SkySwitch Pro website before continuing.

Depending on the Windows version, it may be necessary to select an additional option such as “More info” and then “Run anyway” to start the installation.

After the installation is complete, the SkySwitch Pro application can be started from the Start menu or from the desktop shortcut, if one was created during installation.

If the application does not detect the SkySwitch Pro device after first launch, the USB serial driver may need to be installed separately. This is described in the next section.

### 3.2 First Launch

#### 3.2.1 Hardware Connection

Before starting the SkySwitch Pro software, connect the required cables to the mount controller and to the control computer.

SkySwitch Pro is supplied with the AUX cable already pre-installed in the device. This cable is used for mount ON/OFF pulse control and mount power state monitoring.

Connect the pre-installed AUX cable from SkySwitch Pro to the AUX socket on the 10Micron V3 control box. If the GPS function is used, connect the supplied GPS cable between the GPS socket on SkySwitch Pro and the GPS socket on the 10Micron V3 control box.

The GPS cable supplied with SkySwitch Pro is prepared for the correct signal assignment. Do not replace it with a different cable unless it has been approved for SkySwitch Pro. Using an incorrect GPS cable may cause malfunction or damage to the device or connected equipment.

Finally, connect SkySwitch Pro to the control computer using the USB cable. The USB connection provides both device power and communication with the SkySwitch Pro software.

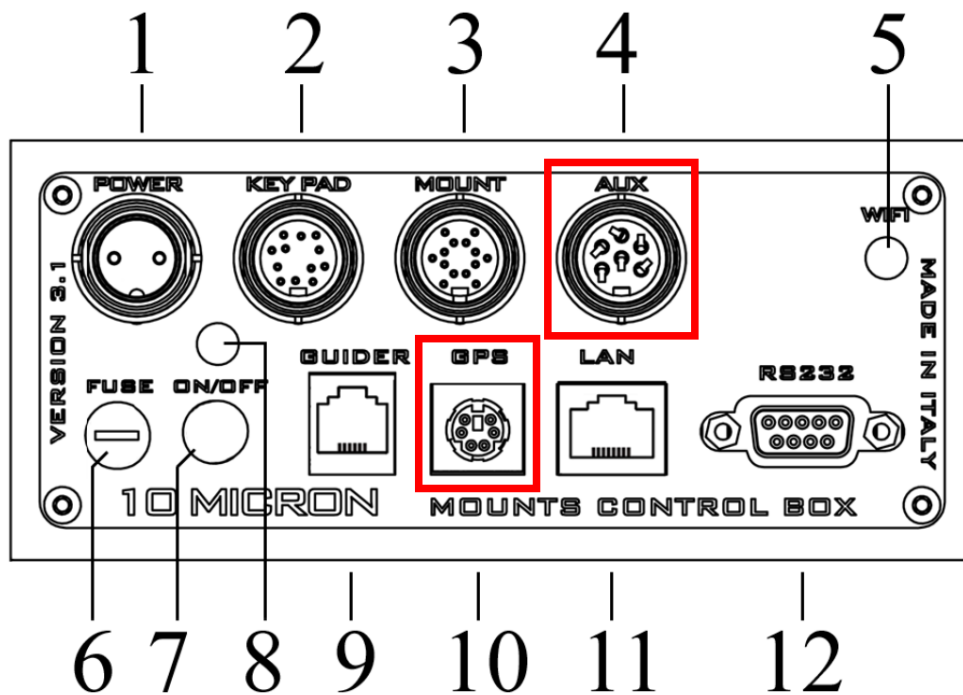


Fig. 5.1: The connection panel on the Q-TYPE 2024 control box.

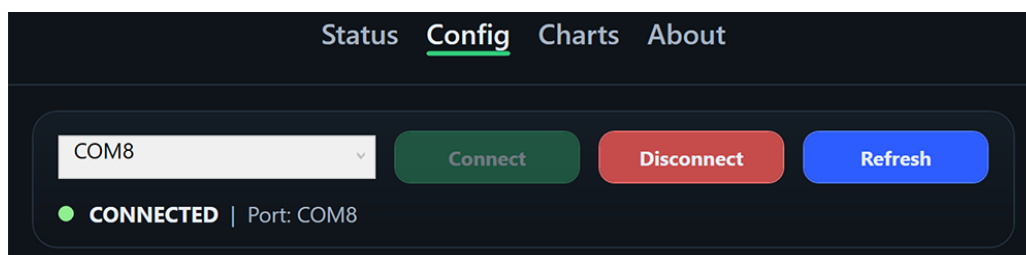
Image source: 10Micron Instruction and Maintenance User's Manual.

After all cables are connected, the device status LED should indicate that SkySwitch Pro is powered and ready for operation.

### 3.2.1 Software

After installing the SkySwitch Pro software, connect the SkySwitch Pro device to the control computer using the USB cable.

Start the SkySwitch Pro application. Open the Config tab and check the available serial ports in the COM port list. Select the COM port assigned to the SkySwitch Pro device and click Connect.



If the connection is successful, the software will display the connected status and the selected COM port number. For example, the application may show:

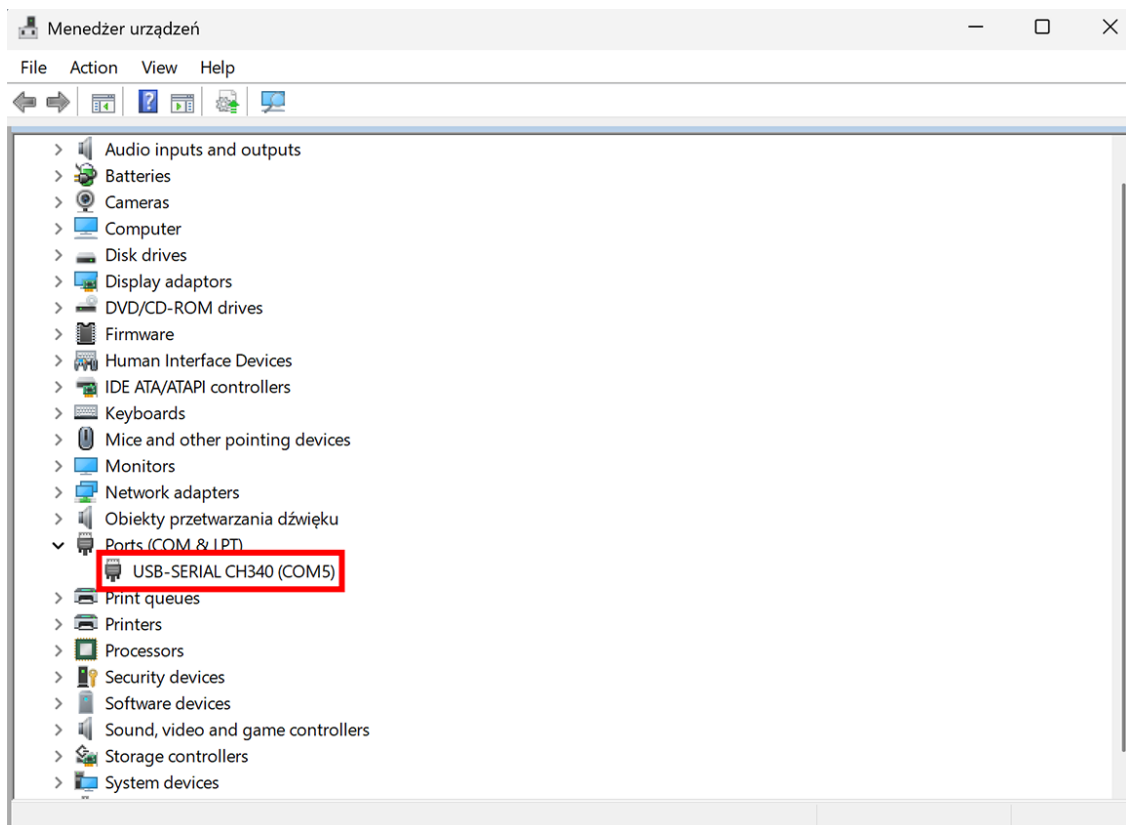
CONNECTED | Port: COM8 (the COM port number may be different on each computer. This is normal)

If you are not sure which COM port belongs to SkySwitch Pro, open Windows Device Manager and check the section: Ports (COM & LPT)

When the SkySwitch Pro device is connected correctly, it should appear as a USB serial device, for example:

USB-SERIAL CH340 (COM5)

The COM number shown in Device Manager is the port that should be selected in the SkySwitch Pro software.



If no suitable COM port appears in the SkySwitch Pro software, or if the device is not visible in Device Manager under Ports (COM & LPT), the CH340 USB serial driver may not be installed on the computer.

In this case, install the CH340 driver, then disconnect and reconnect the SkySwitch Pro device. After the driver installation, check Device Manager again and confirm that the device appears as a USB-SERIAL CH340 port.

Once the correct COM port is visible, return to the SkySwitch Pro software, click Refresh if needed, select the correct port, and click Connect.

## 3.3 Main Screen and Functions

### 3.3.1 Tab Status

The Status tab is the main live monitoring screen of the SkySwitch Pro software. It gives the user a quick overview of the current mount state, communication status, weather readings and GPS information.



SkySwitch Pro - Remote Control for 10Micron V3 Mounts

# SkySwitch Pro

Status Config Charts About

**Mount status**

**OFF**

**PULSE**

**Connections status**

SkySwitch (USB)	Connected
Mount (AUX)	Connected
GPS module	Connected
Weather sensor	Connected

**Sensors readings**

Temperature	24,1 °C	Satellites	9
Pressure	1015,1 hPa	Longitude	19° 01' 47,05" E
Humidity	40,7 %	Latitude	52° 37' 05,53" N
Dew point	9,9 °C	Elevation	36,0 m

CONNECTED | Port: COM8 | UTC: 19:42:15 | Dark mode: OFF | Offsets: OFF | Boltwood log: ON | Weather log: ON

The Mount status panel shows the detected power state of the mount. The large ON or OFF indication is intended to be clearly visible during remote operation, so the user can quickly confirm whether the mount is currently powered on or off.

The **PULSE button** generates a controlled switching pulse used to turn the mount on or off. The pulse duration is approximately 2 seconds. After a pulse is generated, the software starts a

cooldown period of approximately 30 seconds. During this time, the pulse function is temporarily locked to prevent repeated or accidental switching. After sending a pulse, wait until the cooldown period has finished and confirm the updated mount status in the software.

The Connections status panel shows whether the main SkySwitch Pro functions are available. “Connected” for SkySwitch USB means that the software is communicating with the device through the selected COM port. “Connected” for Mount AUX means that the AUX control path is ready to generate the ON/OFF pulse. It does not necessarily confirm that the mount itself is physically connected. If the AUX cable is disconnected from the mount, the app reports the mount status as OFF. “Connected” for GPS module means that the GPS module is powered, communicating with SkySwitch Pro, and waiting for valid GPS data. It does not necessarily mean that the GPS position has already been fixed. The GPS fix status is indicated separately by the GPS LED and by the GPS data shown in the Status tab. “Connected” for Weather sensor means that the internal BME280 sensor is detected and providing readings.

The Sensors readings panel displays live weather and GPS data. The weather values describe the current observing environment around the device and may be used to support atmospheric refraction compensation. When temperature offset correction is enabled, the displayed temperature value includes the configured offset. The dew point value also helps assess condensation risk. The GPS values provide location information for the observing site and support accurate mount configuration.

### 3.3.2 Tab Config

The Config tab is used to connect the SkySwitch Pro software to the device and to adjust the basic operating settings. From this screen, the user can select the serial COM port, manage BME280 sensor offsets, enable weather data output for 10Micron refraction support, configure weather logging, and change the application display mode.

The top section is used to establish communication between the SkySwitch Pro software and the device. Select the correct COM port from the list and click Connect. If the expected port is not visible, click Refresh to reload the list of available serial ports.

When the connection is active, the software displays the connected status and the selected COM port number. The Disconnect button can be used to close the connection.

#### BME280 Offsets

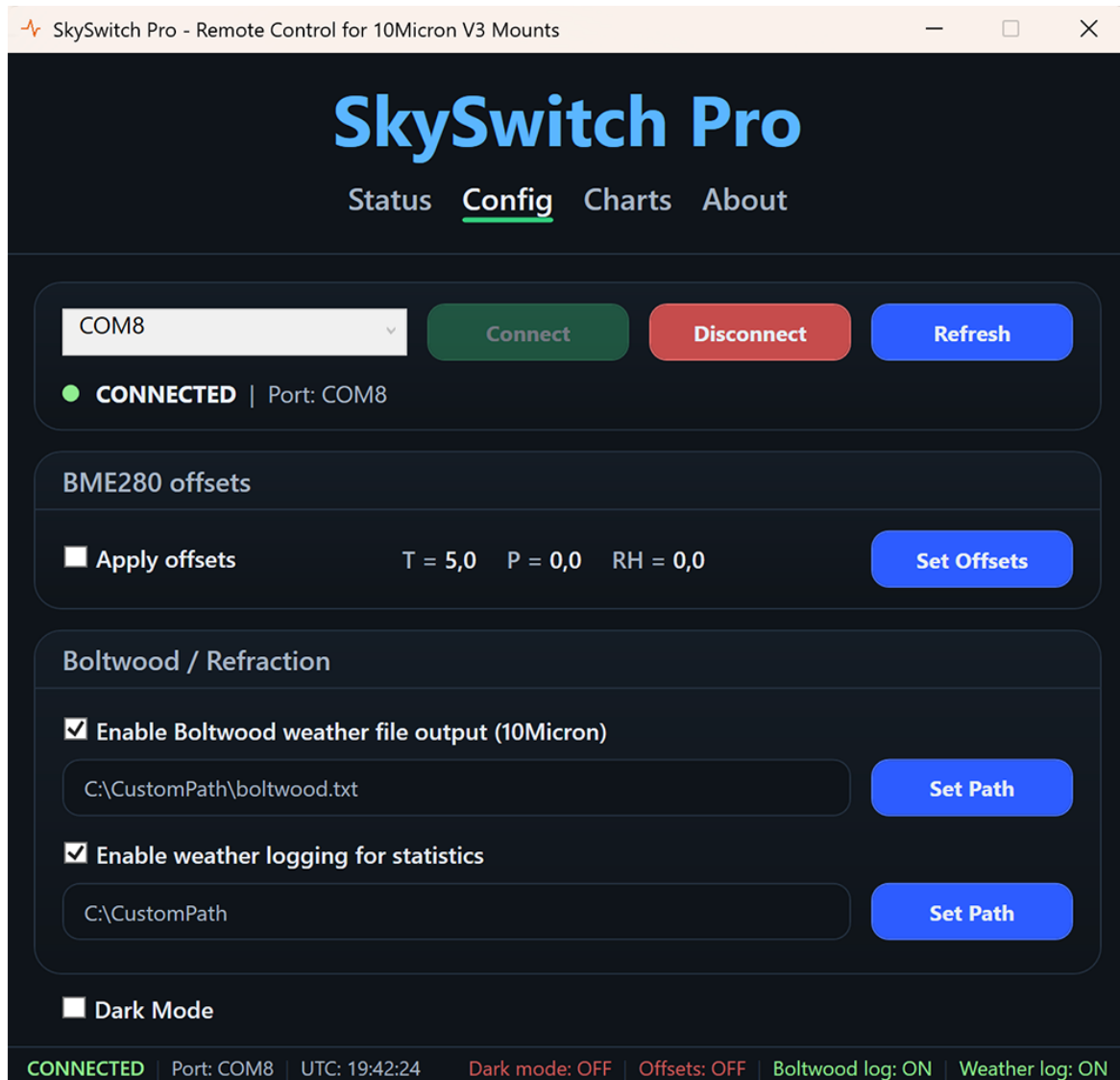
The BME280 offsets section allows the user to apply correction values to the weather sensor readings. This can be useful if the sensor readings need to be aligned with a reference thermometer, barometer or hygrometer.

When Apply offsets is enabled, the configured offset values are applied to the displayed weather data and to the generated weather output. The Set Offsets button opens the offset settings window, where the correction values can be entered.

#### Boltwood / Refraction

The Boltwood / Refraction section controls the weather file output used for 10Micron refraction support. When this option is enabled, SkySwitch Pro writes current weather data to a Boltwood-compatible file at the selected path.

The Set Path button allows the user to choose where the Boltwood weather file should be saved. This file can then be used by compatible 10Micron software or workflows that require live atmospheric data.



### Weather Logging

The weather logging option enables continuous saving of weather data for statistics and later review. When enabled, SkySwitch Pro stores weather readings in the selected folder.

The Set Path button allows the user to choose the folder where the weather log files will be saved.

### Dark Mode

Dark Mode turns off the LEDs on the SkySwitch Pro device during night-time observatory operation..

### 3.3.3 Tab Charts

The Charts tab provides a simple live graph of the most important environmental values measured by SkySwitch Pro. It allows the user to observe how temperature and humidity change over time during an observing session.

The chart uses time on the horizontal axis and two separate vertical axes for temperature and humidity. This makes it easier to compare both values on one screen, even though they use different units. The temperature curve shows the current temperature trend around the device. If temperature offset correction is enabled in the Config tab, the chart uses the corrected temperature value. The humidity curve shows the relative humidity trend. Together with the temperature trend, it helps the user assess whether observing conditions are stable or whether condensation risk may be increasing.



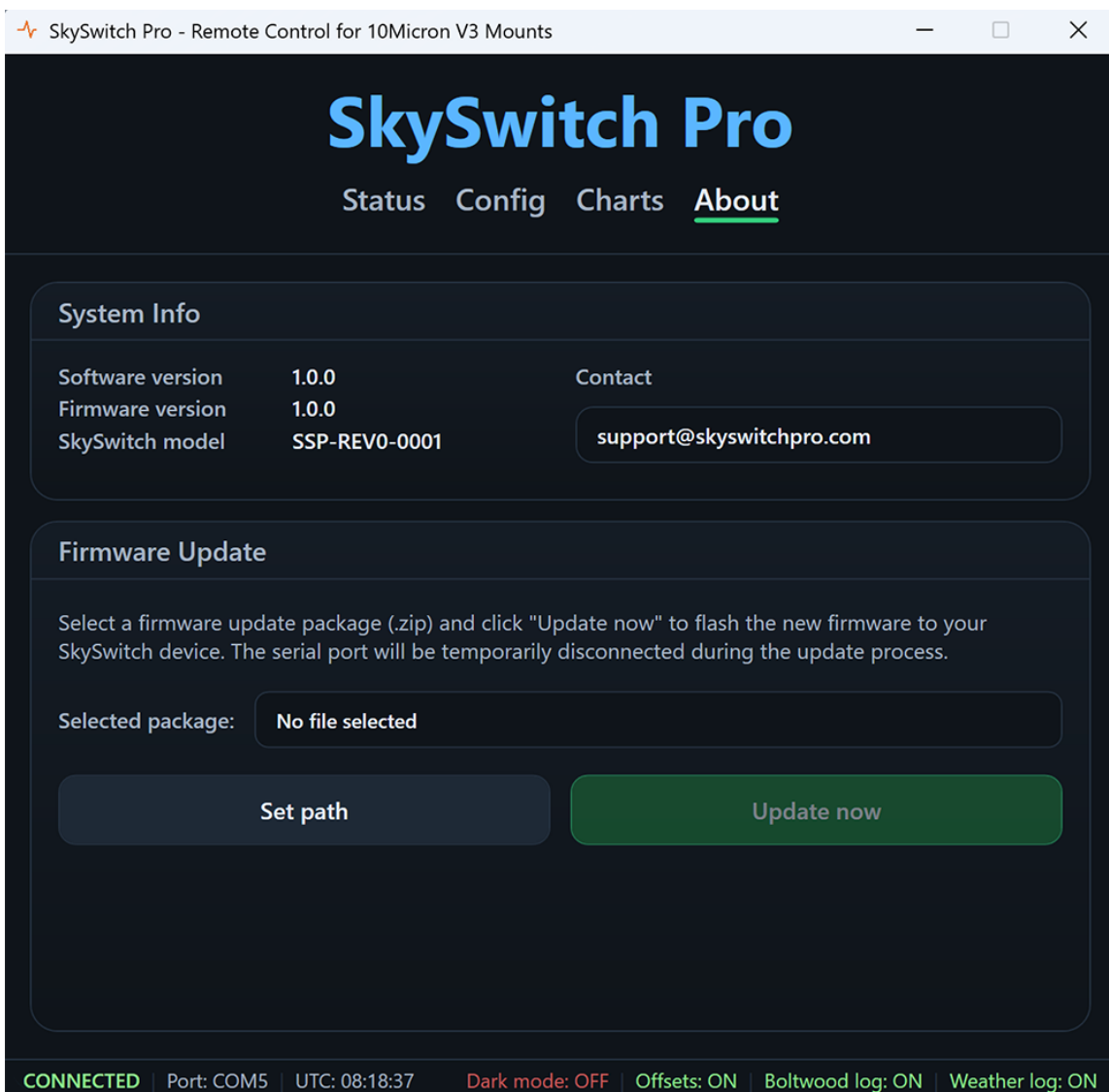
The Charts tab is intended for quick visual monitoring. For long-term analysis, weather logging can be enabled in the Config tab, allowing the measured data to be saved for later review.

### 3.3.4 Tab About

The About tab contains general information about the installed SkySwitch Pro software, the firmware version running on the device, and the connected SkySwitch Pro model.

The System Info section can be useful when checking the current software and firmware versions, identifying the device model, or contacting support. When reporting a problem, include the software version, firmware version and SkySwitch model shown on this screen.

The Firmware Update section is used to update the firmware inside the SkySwitch Pro device. Firmware updates are delivered as update packages in .zip format. To start an update, select the firmware update package using Set path, then click Update now.



The screenshot shows the SkySwitch Pro web interface. The title bar reads "SkySwitch Pro - Remote Control for 10Micron V3 Mounts". The main header displays "SkySwitch Pro" in large blue text, with navigation tabs for "Status", "Config", "Charts", and "About" (which is underlined). Below the header, there are two main sections: "System Info" and "Firmware Update".

**System Info**

Software version	1.0.0	Contact
Firmware version	1.0.0	<input type="text" value="support@skyswitchpro.com"/>
SkySwitch model	SSP-REV0-0001	

**Firmware Update**

Select a firmware update package (.zip) and click "Update now" to flash the new firmware to your SkySwitch device. The serial port will be temporarily disconnected during the update process.

Selected package:

At the bottom, a status bar shows: **CONNECTED** | Port: COM5 | UTC: 08:18:37 | Dark mode: OFF | Offsets: ON | Boltwood log: ON | Weather log: ON

During the firmware update process, the serial connection to the device may be temporarily disconnected. This is normal. Do not disconnect the USB cable and do not close the application until the update process is finished. Use only official firmware update packages provided for SkySwitch Pro. Installing an incorrect or modified firmware package may cause the device to stop working correctly.

## 4. Normal Operation

### 4.1 Daily Startup

Before starting an observing session, connect SkySwitch Pro to the mount and to the control computer as described in the previous sections.

Start the SkySwitch Pro software, open the Config tab, select the correct COM port and click Connect. After the connection is established, open the Status tab and confirm that the device, GPS module and weather sensor are working correctly.

The Status tab should be used as the main operating screen during normal use. It provides live information about the mount state, GPS data and current weather conditions.

### 4.2 Mount ON/OFF Control

The mount can be turned on or off using the PULSE button in the Status tab.

When the PULSE button is pressed, SkySwitch Pro generates a controlled switching pulse of approximately 2 seconds. After the pulse is sent, the software starts a cooldown period of approximately 30 seconds. During this time, the pulse function is temporarily locked to prevent repeated or accidental switching.

After each pulse, wait until the cooldown period has finished and check the mount status again in the software.

### 4.3 Using Weather Data for 10Micron Refraction Support

SkySwitch Pro can generate a 10Micron-compatible weather data file that may be used for refraction correction.

To use this function, enable Boltwood weather file output in the Config tab and select the file path where the weather data file should be saved. In the 10Micron ASCOM driver or 10Micron Mount Configurator, enable refraction data update and select the same file as the refraction data source.

The typical 10Micron-compatible refraction data file contains the current observing conditions in a simple text format:

```
YYYY-MM-DD HH:MM:SS; pressure_hPa; temperature_C  
2026-05-15 22:34:10; 926.3; 17.8
```

The pressure value is given in hPa and the temperature value is given in °C. SkySwitch Pro updates this file automatically when the Boltwood / Refraction option is enabled.

In the 10Micron software, refraction correction should be enabled and the refraction data file location should point to the file generated by SkySwitch Pro. This allows the mount to use current atmospheric data instead of fixed manual values.

## 4.4 Weather Statistics Logging

SkySwitch Pro can also save weather data to CSV files for statistics and later review. This function is independent from the Boltwood / Refraction file.

The weather statistics CSV file is intended for analysis, documentation and monitoring of observing conditions over time. It can be useful for checking how temperature, humidity, pressure and dew point changed during an imaging session.

When weather logging is enabled, SkySwitch Pro creates log files automatically. Each file covers one observing “day” from 12:00 to 11:59 the next day. This approach keeps a full night session in one file, instead of splitting it at midnight.

If weather logging is enabled for each session, every observing session will have its own CSV file in the selected logging folder.

## 4.5 GPS Status and LED Indication

The GPS module provides location and timing information for the system. The GPS status can be checked in the Status tab and by observing the GPS LED on the device.

The GPS LED has two visual states. When the GPS module is searching for position, the LED flashes. When the position has been established, the LED remains continuously on.

After startup, the system may need several seconds to establish a valid GPS position. During this time, the GPS module status may show Connected, but no valid GPS data may be displayed yet. The message “Waiting for GPS data” means that the GPS module is working and waiting for a valid position fix.

For best performance and faster position acquisition, the GPS module should have a clear view of the sky and should not be covered or placed behind obstacles.

## 4.6 Dark Mode

Dark Mode is used to turn off the LEDs on the SkySwitch Pro device during night-time observatory operation. This helps avoid unnecessary light emission in a dark observing environment.

When Dark Mode is enabled, the selected setting is stored in the device EEPROM. This means that if SkySwitch Pro is disconnected and later powered on again, it will immediately start in Dark Mode before the software is launched.

This prevents the LEDs from turning on between connecting the USB cable and starting the SkySwitch Pro application.

## 5. Technical Specifications

The following specifications describe the SkySwitch Pro device, its electrical interface, integrated sensors and supported mount connection.

PARAMETER	SPECIFICATION
Dimensions	87 × 68 × 25 mm
Weight	120 g
Operating temperature	-20°C to +60°C
AUX cable length	50 cm
Enclosure material	PETG
Enclosure type	Compact 3D-printed housing
Power supply	USB-powered, 5 V
Operating current	65 mA
Overcurrent protection	Resettable polymer fuse, PTC
Electrostatic protection	ESD diode
Pulse output isolation	Opto-isolated
USB interface	USB-B
GPS connector	6-pin Mini-DIN, PS/2 type, V3 compatible
Mount control interface	AUX pulse output for 10Micron V3 controller
Mount status input	Real-time ON/OFF status monitoring
Sensor type	Bosch BME280
Measured parameters	Temperature, pressure, humidity
Temperature accuracy	±1.0°C
Pressure accuracy	±1 hPa
Humidity accuracy	±3% RH
Derived parameter	Dew point calculation
GPS receiver	Quectel L80RE-M37
GNSS receiver	88-channel GNSS receiver
Tracking sensitivity	-165 dBm
GPS interface	UART

PARAMETER	SPECIFICATION
Timing output	1PPS
Antenna	Integrated patch antenna
GPS operating temperature	-40°C to +85°C
Supported mounts	10Micron mounts with V3 controller
Primary function	Remote ON/OFF control through AUX interface
Environmental data output	Boltwood-compatible weather file for 10Micron refraction support
Software platform	SkySwitch Pro software for Windows
Firmware update	Firmware update package via SkySwitch Pro software