MGBox Series
Windows application manual

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System Requirements

MGPBox was tested on WindowsXP, Windows 7 and Windows 10 in a mix of 32-bit and 64-bit versions. It is assumed that the Windows OS is updated to the latest patches and updates.

General Requirements

Windows Operating Systems

- Windows 10
- Windows 8 / 8.1
- Windows 7
    - No further requirements, in case the FTDI Driver is missing or overwritten by the Windows update process, please reinstall the one from the FTDI website (http://www.ftdichip.com/Drivers/VCP.htm)
- WindowsXP
    - Service Pack 3
    - .Net Framework 4.0
    - FTDI Driver (http://www.ftdichip.com/Drivers/VCP.htm)

Other Operating Systems

Although untested, MGPBox should work on Mac or Linux operating Systems. It may be necessary to install the proper driver that is available from FTDI (see link above). For a description of the command protocol please refer to Section Application Interface.

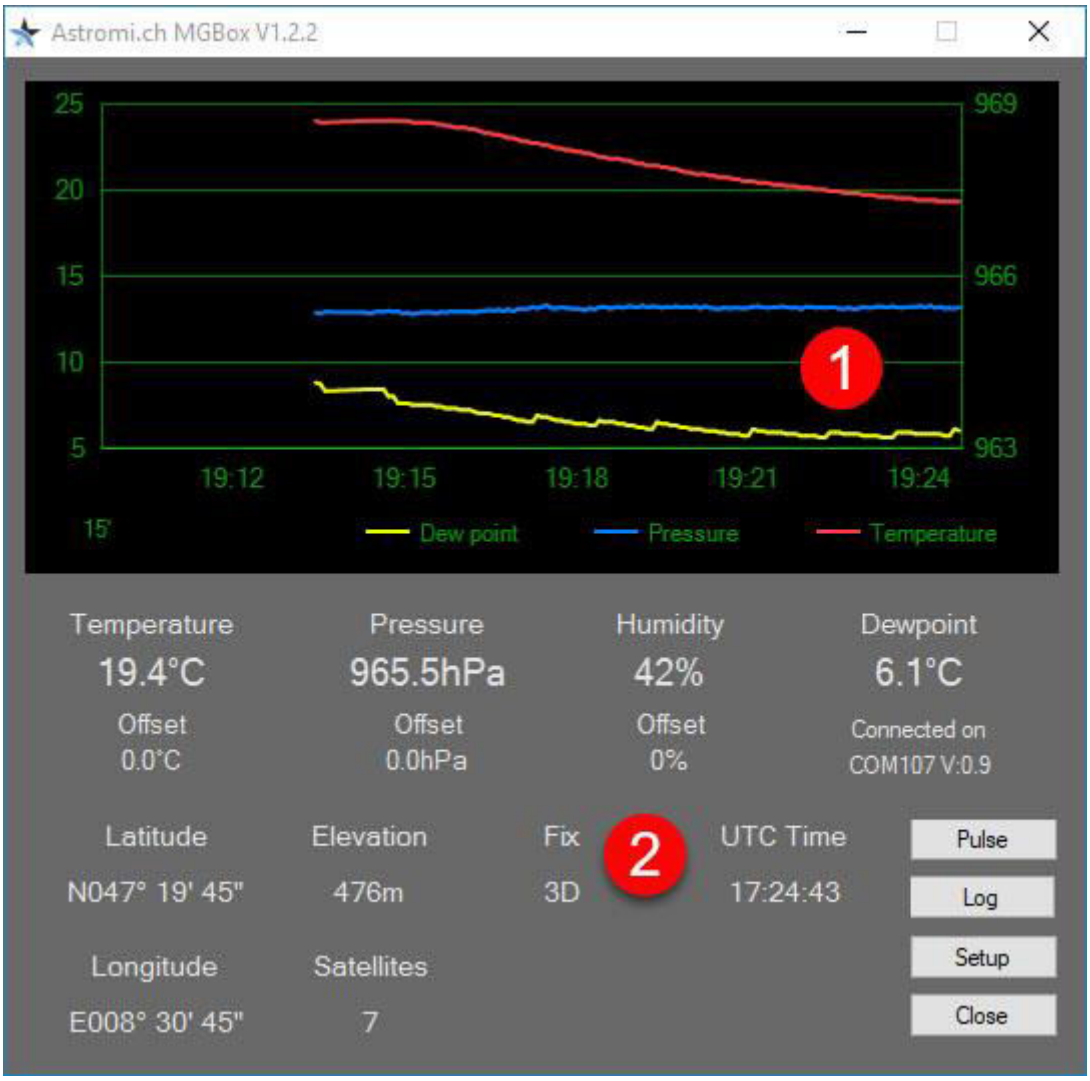
ASCOM Connections

For connections thru ASCOM the following needs to be installed:

- ASCOM Platform 6.2 or later
- Astromi.ch MGBox Driver

Main Window

The Software that is provided together with your device collects the data from the hardware and displays it in a small graphical user interface that can be split up into two main sections, which are described below. The application also writes a file called “10micronRefraction.txt” to your temp folder at periodic intervals. If you own a 10Micron mount and use Per Frejvall’s ASCOM Driver for the mount, the driver will read this file and send the atmospheric information to your mount.



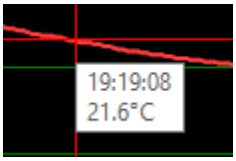
Temperature, Pressure and Dew Chart

As soon as your device is connected by the application, the chart region (1) will begin to be populated with data. The Chart features a temperature scale on the left side that is used for temperature and dew point, and a pressure scale on the right side used to indicate current relative air pressure. The scale at the bottom indicates a timeline, with the actual time and data displayed on the right side of the graph.

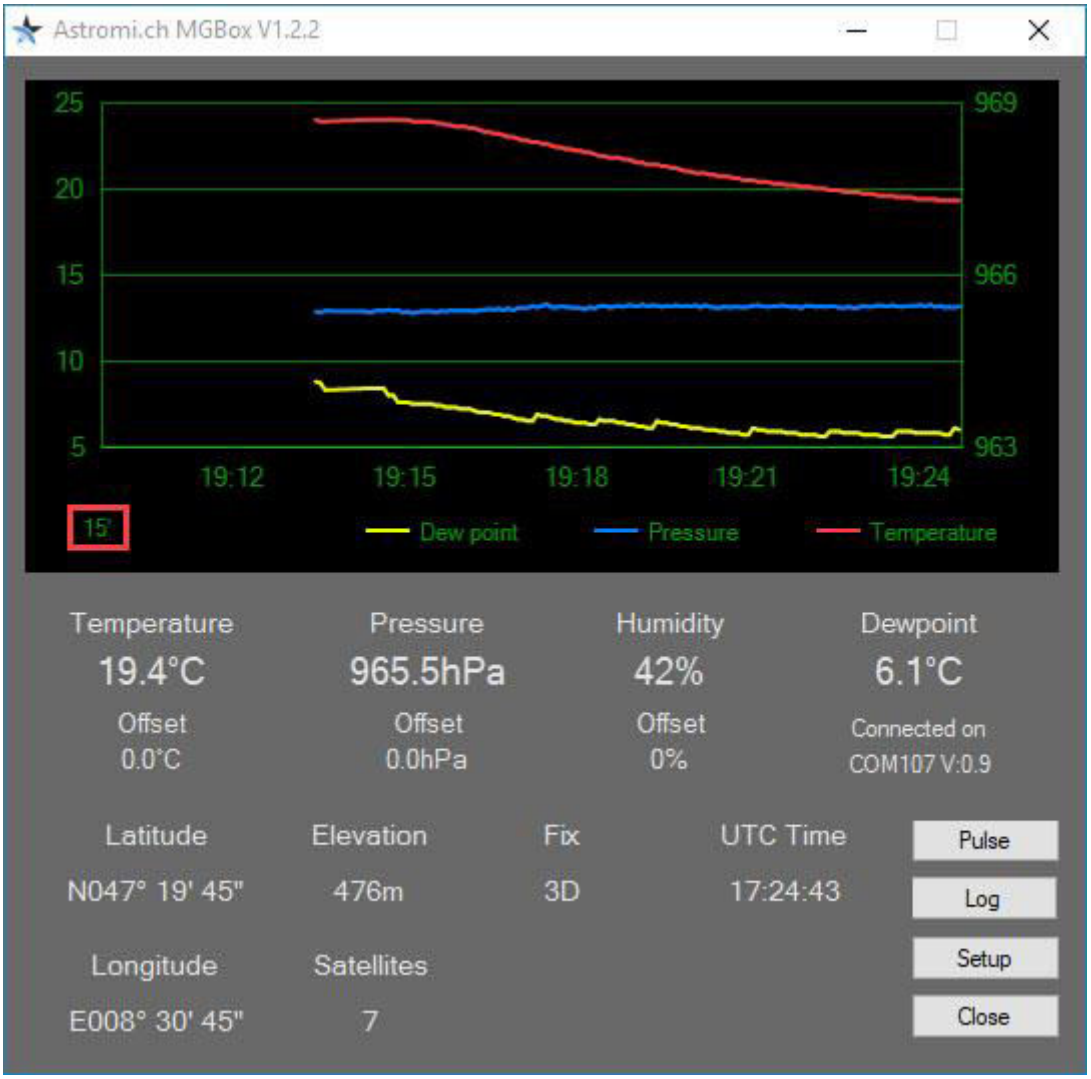
Below the chart the current measurements are displayed as clear text (2), along with information about configured offsets, GPS information, the port used for communication and firmware version of your device.

Chart Details

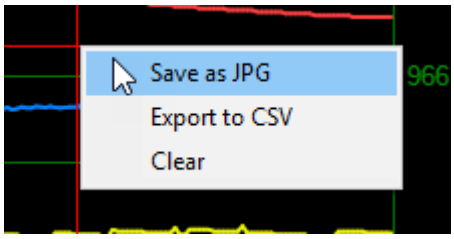
Moving the mouse pointer inside the chart area will change it to a crosshair that provides detailed information about a certain point on the chart when hovered over a line.



On the bottom left of the chart, the current range index of the chart is displayed. Scrolling with the mouse wheel acts as zoom into or out of the graphic and will change the time range that is displayed on the chart.



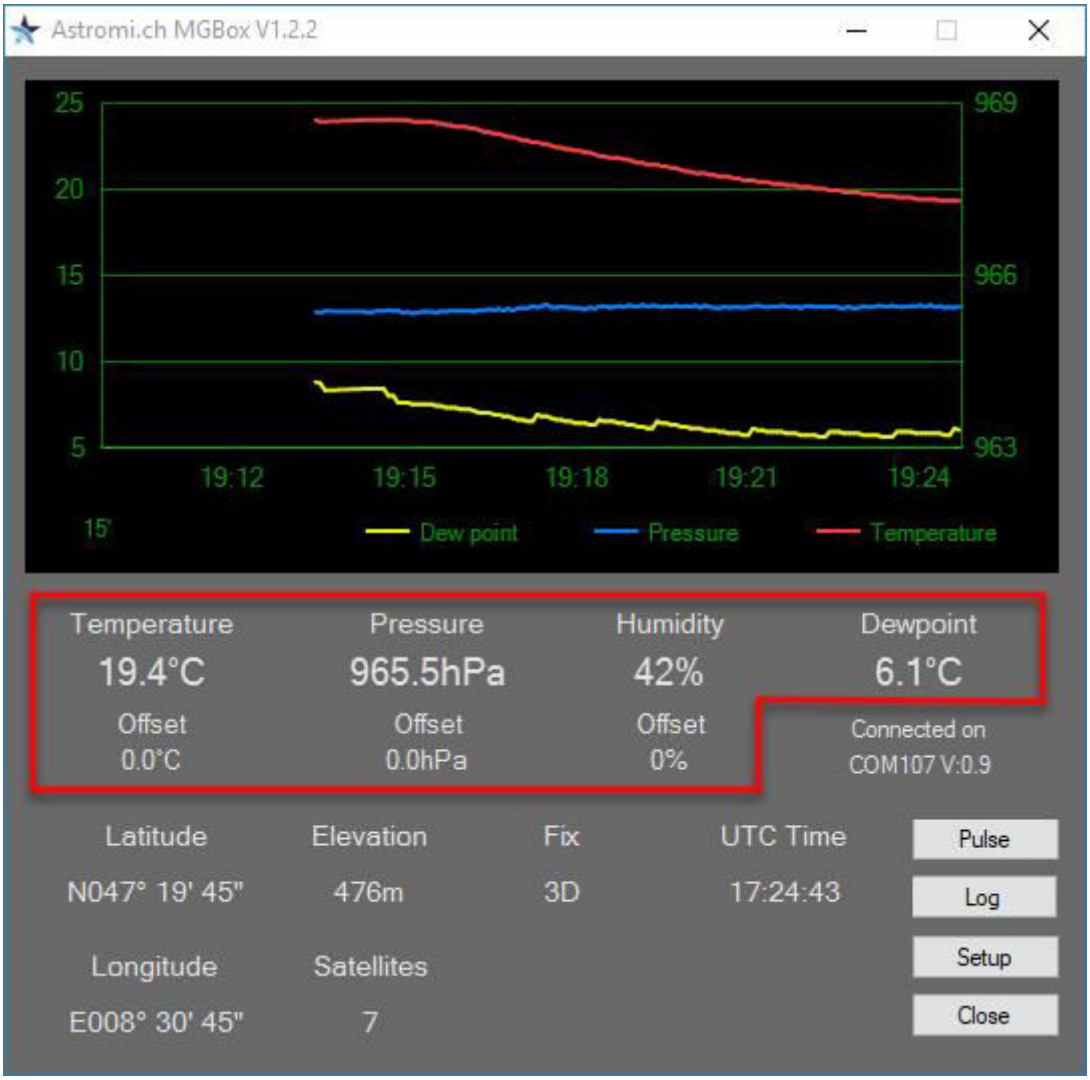
Clicking onto the chart with the right mouse button brings up a context menu as shown in the next figure.



- Save as JPG
  - Saves the currently displayed chart in a picture on your computer.
- Export to CSV
  - Exports all data points available into a CSV file that can later be used with 3rd party Software (e.g. Excel) to recreate the graphs.
- Clear
  - Clears the current graph and removes all data points

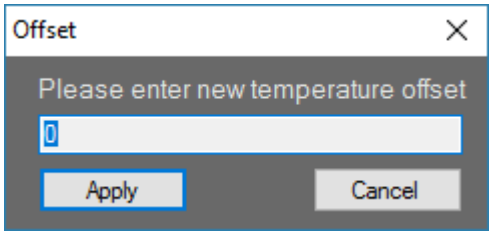
Temperature, Pressure and Dew point values

In addition to the chart, the current values are displayed in a numeric format for easier readability.



Offsets

Should you find your device to not be accurate enough in either temperature, pressure or humidity, you can apply a linear offset. Double clicking either the offset label or the numeric value for the offset in question will bring up a small window asking for a new offset to be applied.

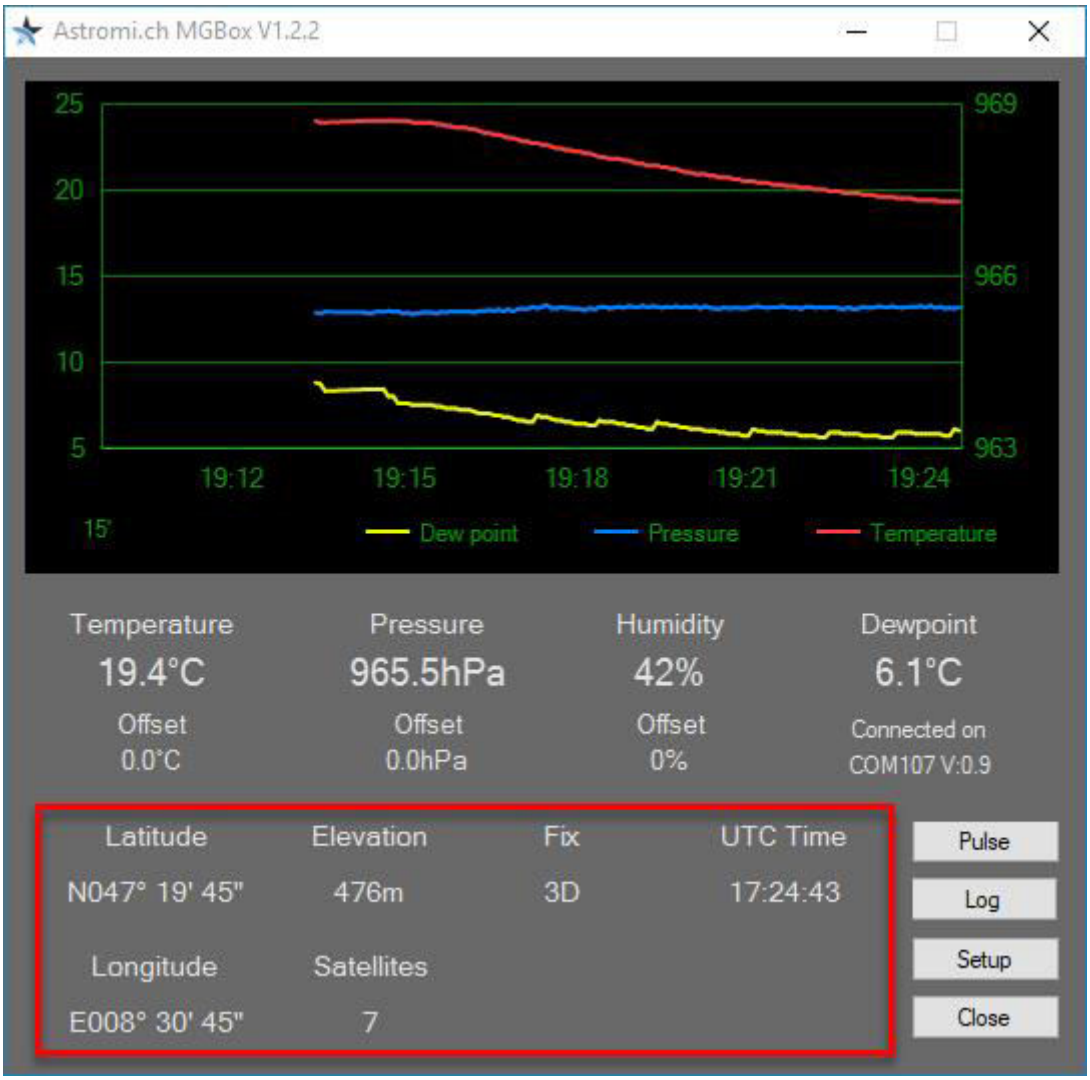


Offset values are stored inside the EEPROM and are therefore unique to the device and transferred to all systems that you use this particular device on.

Note: Dew point is calculated by the device and is based on current temperature and current humidity. Applying an offset to either of these two values will automatically be reflected in the dew point reading as well.

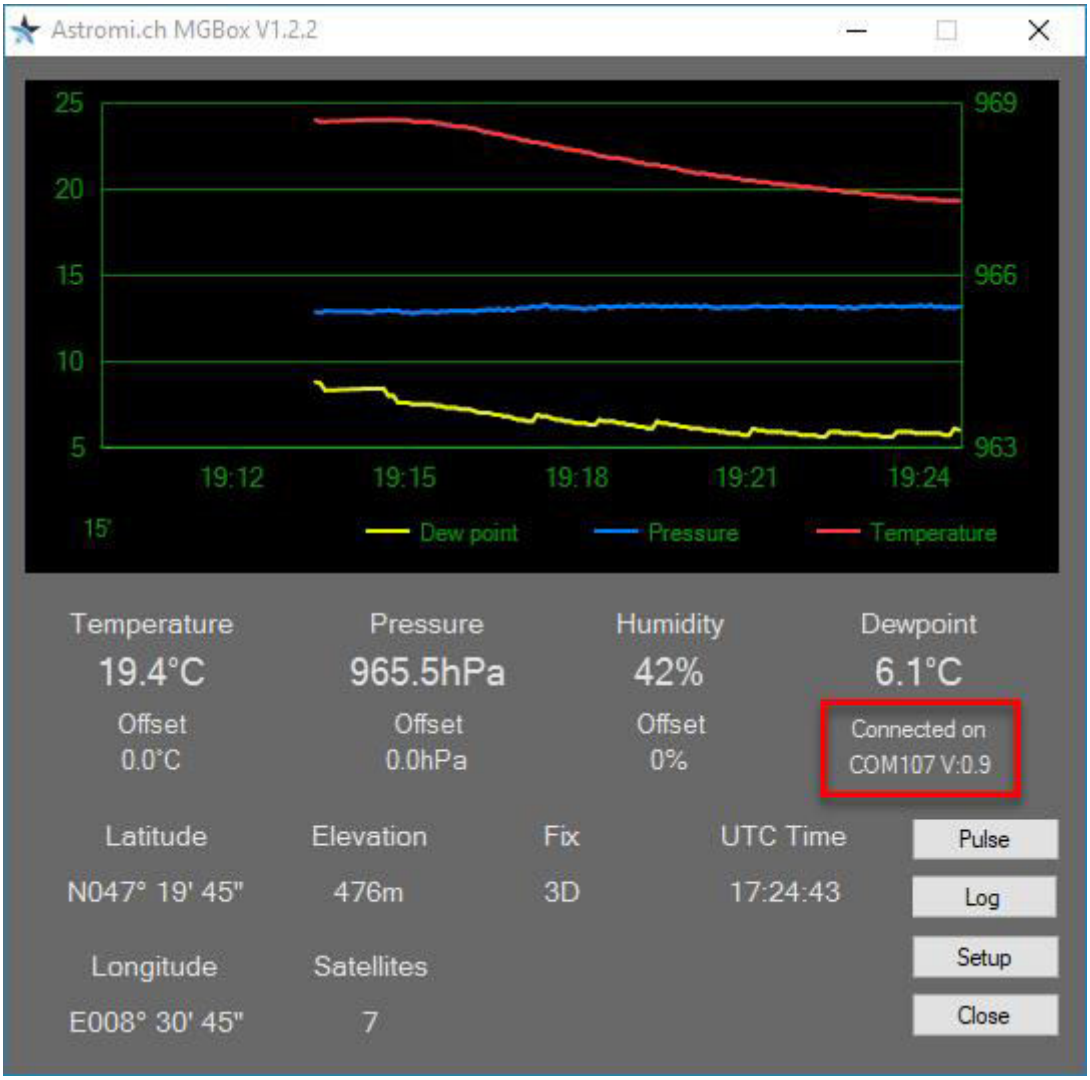
GPS-Location, altitude and UTC-Time

Once your device receives valid GPS-Data, information about the location is displayed in the GUI.



Connection indicator

Below the dew point information, the connection status is displayed. If no device is detected by the software, “Waiting for device” is displayed. Once a connection has been established the Com-Port used for the connection along with the Firmware-Version of the connected device is displayed.


Astromi.ch MGBox V1.2.2
25
20
15
10
5
969
966
963
19:12
19:15
19:18
19:21
19:24
15'
Dew point
Pressure
Temperature
Temperature
19.4°C
Offset
0.0°C
Pressure
965.5hPa
Offset
0.0hPa
Humidity
42%
Offset
0%
Dewpoint
6.1°C
Connected on
COM107 V:0.9
Latitude
N047° 19' 45"
Longitude
E008° 30' 45"
Elevation
476m
Satellites
7
Fix
3D
UTC Time
17:24:43
Pulse
Log
Setup
Close

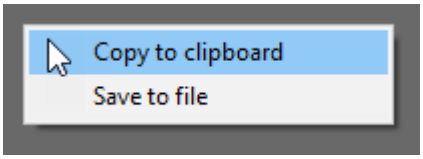
Pulse, Log, Setup and Close buttons

Pulse-Button (MGPBox only)

Starts a pulse of 1.5 seconds duration. If your mount is powered off, it will be turned on. Should it already be running, it will be shut down.

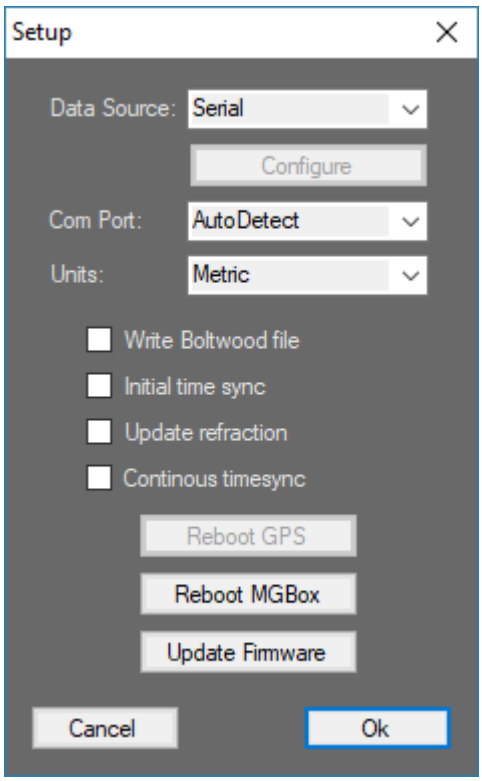
Log-Button

The Log-Button opens an additional Window that contains Logging information sent from the device to the application. The entries in this window are sorted by time, so the newest ones are always at the top of the list.
The “Autosave” option continually saves the log file to your documents\Astromi\MGBox folder. Clicking with the right mouse button will bring up a context menu that allows you to either copy the content to the clipboard, or to save it to a file.



Setup

You can configure behavior of the software as well as perform firmware updates should they become necessary.



- Data Source
  - Specify if the application should connect to your device thru the available ASCOM Driver, or directly to the serial port. If ASCOM is selected, the setting for the Com Port is grayed out.
  - The Application supports “Hot-Plugging” when using serial connections to the device, meaning you can connect or disconnect your device at any time and the application will either connect or disconnect automatically.
- Configure
  - Configure ASCOM Driver settings. The settings will be stored and the application tries to connect to your device automatically on the next startup
- Com Port
  - AutoDetect is the default setting. In this configuration the application will periodically “scan” all available com-ports on your system for a device.
    It does so by connecting to the port, “listening” to the data coming from the port and deciding whether the data looks valid or not. If no device is detected, the application will try again after a short delay.
    Once a device has been found, the search is ended and a permanent connection is established.
  - If the AutoDetect routine described above is not wanted or causes undesirable side-effects to other devices connected to your PC, you can manually select which port the application should “listen” on.
- Units
  - Select the units for the display. You can choose between “Metric” and “Imperial”.
    Note: If you choose “Imperial”, your device still uses metric units behind the scenes. There will be rounding errors due to the conversions and the limited precision.
- Write Boltwood file
  - If this checkbox is selected, the application generates a text file in your “My Documents” Folder named “boltwood.txt”. This file is compatible with the structure as generated by Boltwood weather stations and can be used by Software such as CCD Autopilot.
    NOTE: If making use of this feature be aware that only the timestamp and the data that your device provides are valid! The values e.g. for wind or rain shall not be used as the data is not “real”!
- Send GPS Data to Mount
  - Controls whether raw GPS-Data from the Module is sent to the mount thru the RJ11 Port.
- Send Meteo Data to Mount
  - If this option is enabled, raw meteo data is sent to the mount thru the RJ11 Port.
- Continuous timesync
  - This option is only available with the 10Micron specific firmware and is described in the respective section of this manual.
- Reboot GPS (MGBoxV2 and MGPBox only)
  - Reboots the GPS-Module in case it’s stuck or something else happened.
- Reboot MGBox
  - Reboots MGBox and initialized everything from scratch.
- Update Firmware

- Should newer Firmware versions become available you can use this button to update your device to the newest version. During the update process various Windows may pop up. Please ignore them and do not interrupt the update process.
- The Firmware can only be updated if connected via Serial Port

- **NOTE 1:** When connecting thru ASCOM, “Hot-plugging” of your device is not supported. Your device needs to be connected to the PC and the Com Port available on startup of the application.
- **NOTE 2:** Because of “issues” with Serial Ports in the .Net Framework, the application needs to be restarted when switching from ASCOM to Serial connection.

Close button
Closes the application.

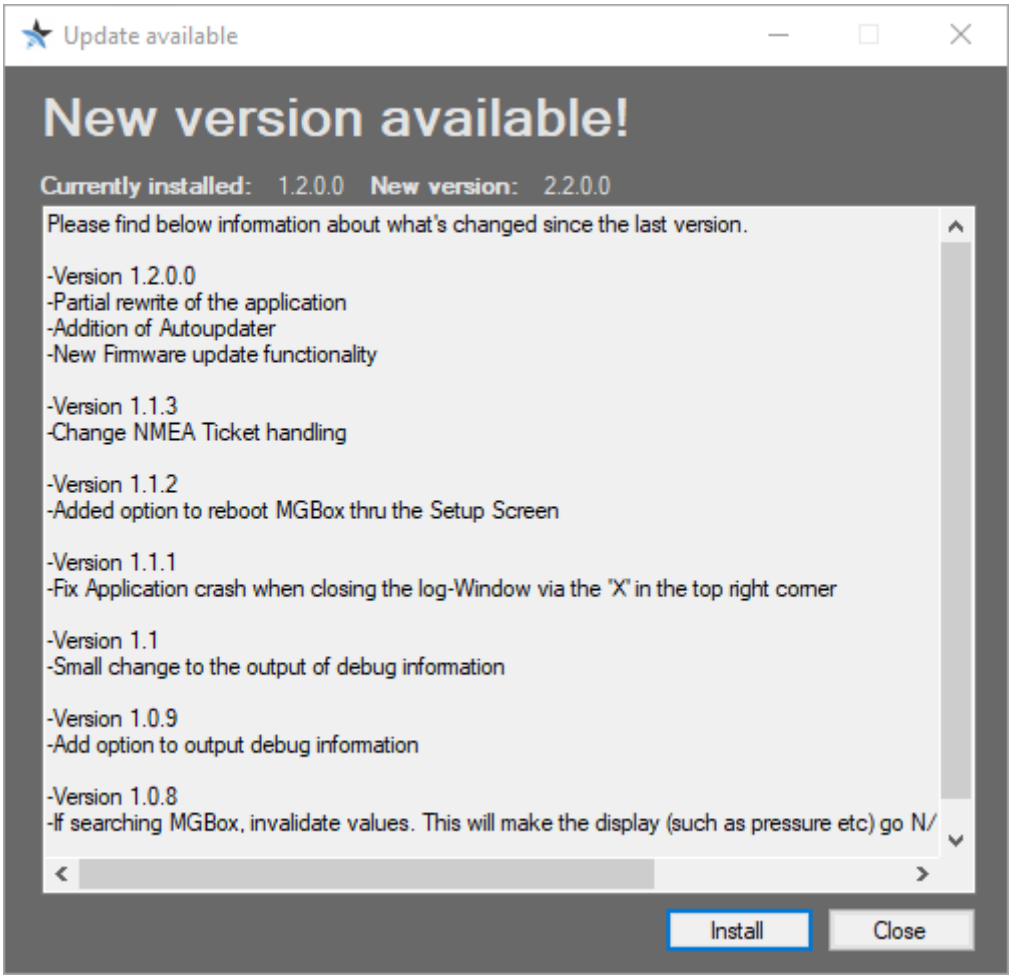
Running multiple Instances of the application

It is possible to run multiple instances of the MGBox application. The instance number is displayed in the title bar of the application the second and each subsequent instance that is launched. Please note that each device can only be connected to one instance of the application at a time.

Auto updater

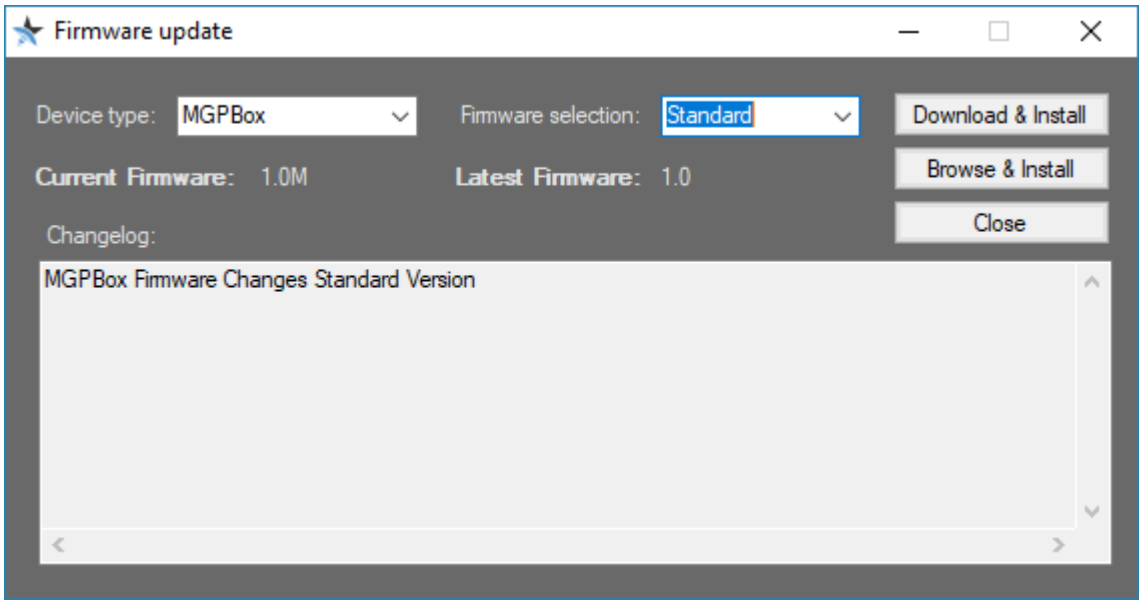
Windows Application

Version 1.2 and upwards includes an auto updater for both the application and the firmware. If there is a new Version of the MGBox Windows application available, a popup will show upon start of the application. You can choose to either install the update right away, or do it later.



Firmware

A few seconds after the windows application has connected to your device, it will check if there is a newer firmware version available. If there is, the following window will pop up:



Download & Install

This will download the newest firmware from the astromi.ch website and launch the installer. While the windows application tries to determine the device connected to your computer, please ensure that the “Device type” is correctly set before you update the firmware.
It is important that you do not interrupt the update process! Doing so may leave your device in an unrecoverable state.

Browse & Install

If you wish to install the update manually, you can click this button. A window will pop up where you can locate the Firmware file and upon confirming the selection, the update process will start.

Scripting

The windows application can also be started thru command line. In that mode, no GUI will be shown. This is useful if you e.g. want to send a pulse to start or shut down your mount from a script. Obviously, this only works for the MGPBox device, as the others do not have the hardware required for sending pulses.

The following example demonstrates command line usage.
MGBox.exe -P COM48 -T 1500

The following command line arguments are recognized:

-P	Port
COM48	Look for PBox on COM48 You can also use «AutoDetect» instead of specifying the Com-Port
-T	Pulse length
1500	Actuate relay for 1500ms
-Help	Displays help

Troubleshooting

If your device does not work as expected, please check the following:

- Verify in Device Manager the FTDI Serial Port shows up. Install / reinstall the driver if necessary (http://www.ftdichip.com/Drivers/VCP.htm)
- If configuring ASCOM Connection and it appears that nothing happens when you click the “Configure” button, look in your task bar for an additional window. Sometimes the ASCOM Setup-Dialog ends up behind the other windows and is therefore not apparently visible.