

WXEth (firmware v1.03)

Ethernet Interface for Weather Stations

APRS-IS servers support

www.weatherunderground.com service support

Device manual

Configuration software manual



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1. Technical parameters

Dimensions	70x63x30mm
Weight	80g
Supply voltage	12VDC typ. (9 - 16VDC)
Power consumption	80mA
Operation temperature	-30 °C / +70 °C
Weather station interface	RS232, DB9 connector
Ethernet interface	100BASE-TX, 100mbit

2. Device description

The device allows you to send weather reports to web sites without a PC. Simply connect WXeth to a computer network connected to the internet to get the opportunity to create weather statistics and graphs on-line.

Communication between the weather station and the device is via RS-232 interface.

We intend to update the list of supported sites and weather stations on the basis of user comments and the available documentation of protocols and interfaces

2.1. Supported weather stations

Currently supported are the following stations with RS232 interface:

- Peet Bros Ultimeter 100,
- Peet Brot Ultimeter 800,
- Peet Bros Ultimeter 2000,
- Peet Bros Ultimeter 2100,
- LaCrosse/Technoline WS-2300,
- LaCrosse/Technoline WS-2350.

It is possible to add support for other stations, provided that their interface is electrically compatible and description of communication protocol is available.

2.2. Supported weather services

Currently following web services are supported:

- www.weatherunderground.com,
- APRS-IS amateur radio servers,
- PHP/mysql programmers can easily add support for the device to their sites, because the data are sent over the Internet via HTTP GET method.

3. Connecting the weather station

Wiring of the weather station is limited to connecting the RS232 cable to the WxEth device.

3.1. WS-2300, WS-2350 stations

These stations differ only in that the WS-2350 manufacturer has made an external USB->RS232 adapter, which does not apply in the case WxEth. Therefore, in both cases the weather station data cable must be connected directly to RS232 DB9 socket of WxEth.

3.2. Peet Bros Ultimeter stations

In the case of Peet Bros Ultimeter weather stations, RS232 cable must be connected from the station to DB9 socket of WxEth. Stations must then be manually switched to "data logger" mode. According to the manufacturer's instructions, you should press CLEAR + WIND SPEED buttons for 3 seconds to activate the "data logger".

4. Device configuration

4.1. Entering configuration mode

Device configuration is performed via USB interface from a Windows PC application.

To enter configuration mode you should perform the following steps:

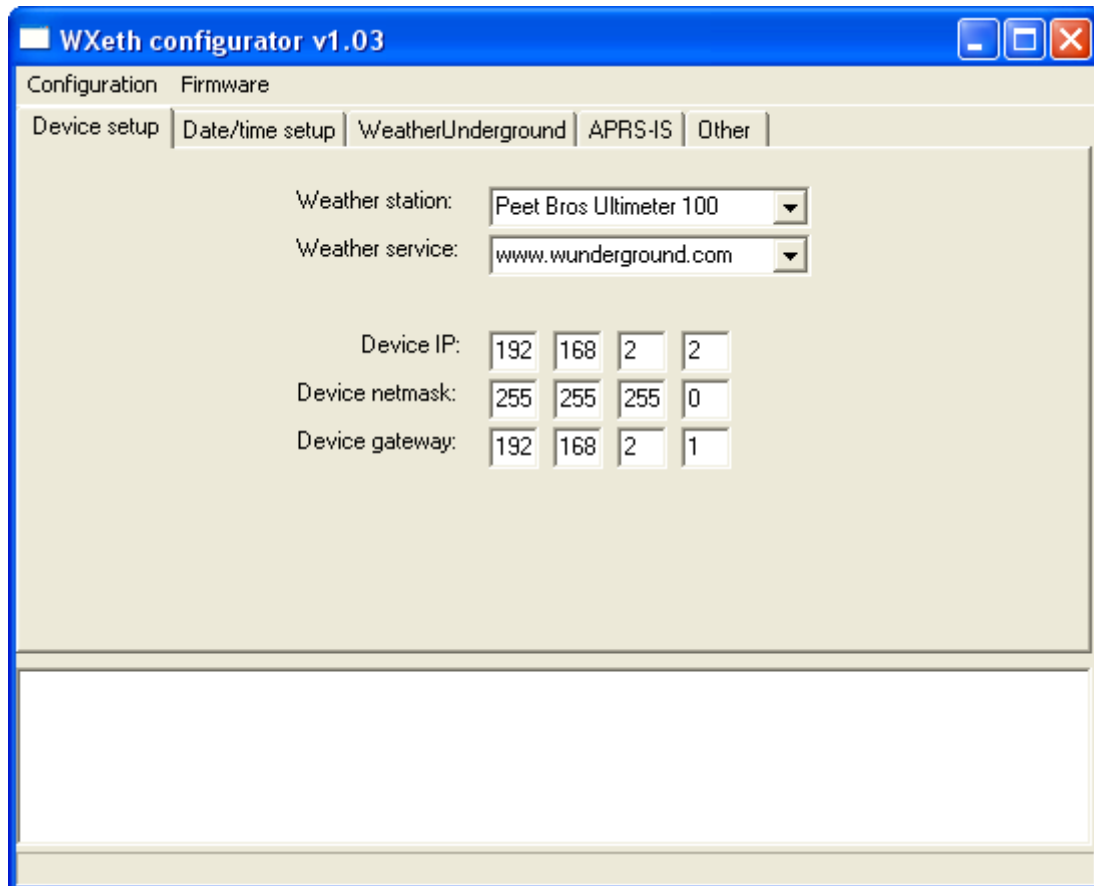
- disconnect power from the device,
- connect USB cable between PC and the device,
- connect power to the device,
- configuration mode is enabled in power-up if USB cable is connected between PC and WxEth. Therefore you should connect USB cable before connecting power to the device,
- configuration mode is indicated by blinking POWER LED.

To enter normal operation mode you should perform the following steps:

- disconnect power from the device,
- disconnect USB cable,
- connect power to the device,
- normal mode is indicated by POWER LED being lit.

4.2. „Device setup” Tab

Below you can see the „Device setup” window:



Main menu buttons:

- Configuration->Read from device - reads current configuration from the device,
- Configuration->Write do device - writes current configuration to the device,
- Firmware->Upgrade firmware - writes new firmware upgrade to the device.

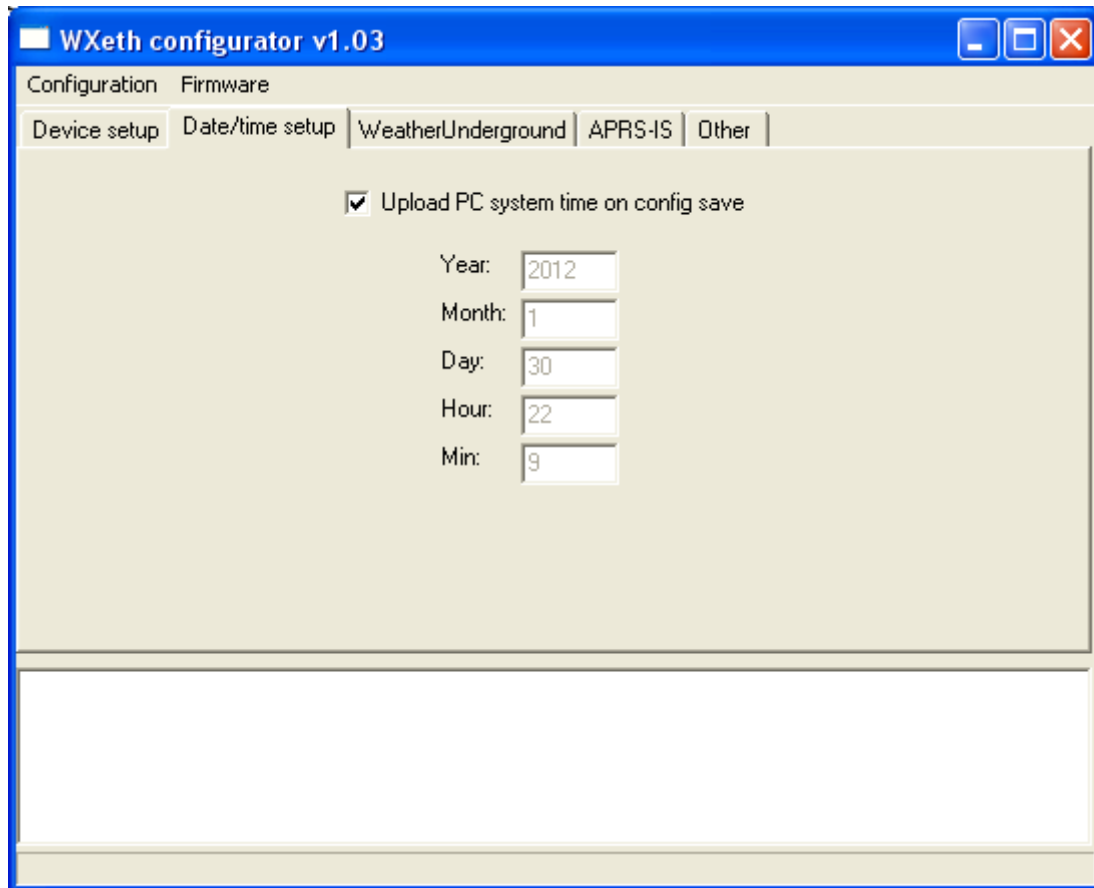
„Device setup” Tab options:

- Weather station - weather station selection box,
- Weather service - weather service selection box,
- Device IP - network static IP address of the device,
- Device netmask - network mask,
- Device gateway - internet router IP address.

The device operates with a static IP address assignment. Therefore, the user must know his LAN network and router settings.

4.3. „Date/time setup” Tab

Below you can see the „Date/time setup” window:



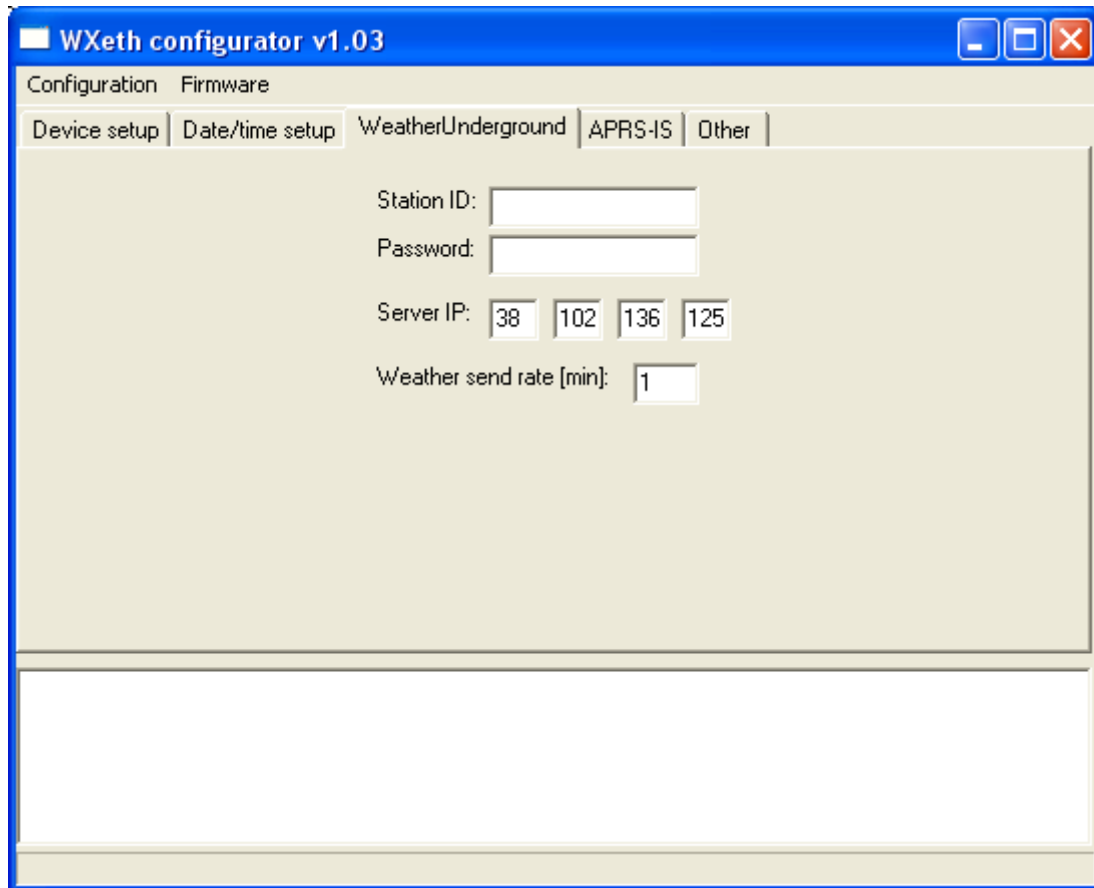
„Date/time setup” Tab options:

- Upload PC system time on config save - select this option to upload the current time from the PC during the configuration save. If this option is selected, following fields will not be available to edit.
- Year
- Month
- Day
- Hour
- Min

Current time is saved when you save the configuration, but the device's internal clock is updated only after the entering the normal operation mode. So after saving the configuration you should quickly enter normal operation mode, in order to obtain the most current time.

4.4. „WeatherUnderground” Tab

Below you can see the „WeatherUnderground” window:



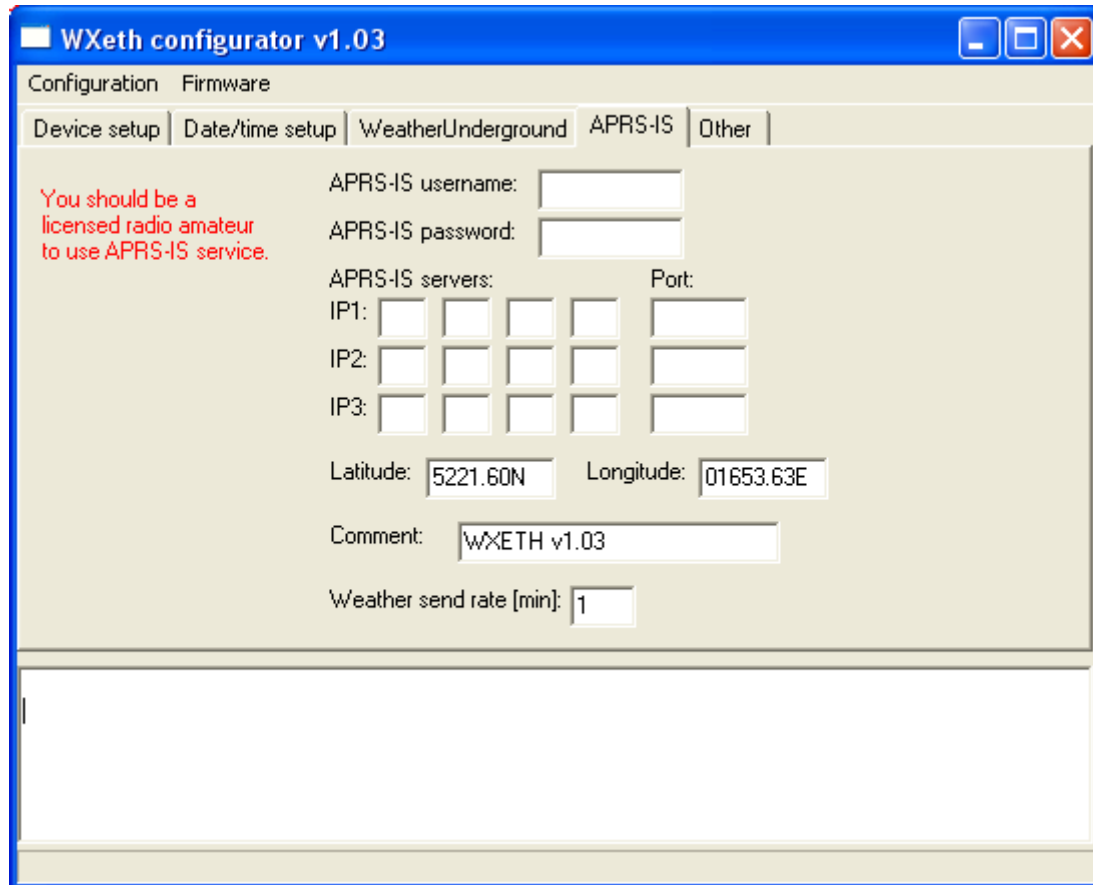
„WeatherUnderground” Tab options:

- Station ID - station ID generated when you register on the WeatherUnderground website,
- Password - WeatherUnderground account password,
- Server IP - WeatherUnderground server IP address, usually should be left unchanged,
- Weather send rate - weather reports update rate in minutes.

4.5. „APRS-IS Tab”

APRS-IS service is designed for licensed radio amateurs. In order to use this service you must obtain a callsign and password to APRS-IS server.

Below you can see the „APRS-IS” window:



The image shows a screenshot of the 'WXeth configurator v1.03' software window. The window has a blue title bar and standard Windows window controls. Below the title bar, there are two tabs: 'Configuration' and 'Firmware', with 'Configuration' selected. Under 'Configuration', there are five sub-tabs: 'Device setup', 'Date/time setup', 'WeatherUnderground', 'APRS-IS', and 'Other', with 'APRS-IS' selected. The main content area contains the following fields and text:

- A red warning message: "You should be a licensed radio amateur to use APRS-IS service."
- 'APRS-IS username:' followed by a text input field.
- 'APRS-IS password:' followed by a text input field.
- 'APRS-IS servers:' followed by three rows of IP address input fields (IP1, IP2, IP3), each with four individual digit boxes.
- 'Port:' followed by a text input field.
- 'Latitude:' followed by a text input field containing '5221.60N'.
- 'Longitude:' followed by a text input field containing '01853.63E'.
- 'Comment:' followed by a text input field containing 'WXETH v1.03'.
- 'Weather send rate [min]:' followed by a text input field containing '1'.

Below the configuration fields is a large empty text area.

„APRS-IS” Tab options:

- APRS-IS username - radio amateur callsign,
- APRS-IS password - callsign password,
- APRS-IS servers - you can enter up to 3 APRS-IS servers. If you lose connection with the first, the device moves into the second, then third. Connection attempts are executed in a loop with some delay in order to find the correct connection.
- Latitude - latitude for the weather report,
- Longitude - longitude for the weather report,
- Comment - comment for the weather report,
- Weather send rate - weather reports update rate in minutes.

