USB WATCHDOG LITE

User Guide

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Description
USB WatchDog Lite (USB watchdog timer) is used to restart PC or other devices automatically in case of computer is frozen. The main idea is to make sure the PC is always available and running, especially for systems that are not continuously monitored.

The device is produced in two modifications: USB TypeA, USB PBD10.

Key features
- Compatible OS Windows/Linux/Mac Os X
- Connection via USB interface
- Simple protocol allows implement own version of control software
- The maximum configurable time of waiting the signal from 1 to 9 minutes
- Small size
- Operates in temperature range -40/+85°C
• Doesn’t need external power supply

• Has light indication, which allows to define current state of device

Operation

The device waits for a signal from PC through USB. If the signal isn’t received during set time, USB Watchdog will send a signal to Reset pins. After sending the Reset signal, the device’s timer will be set automatically on 5 minutes.
USB Connection

- **Connection a device with USB TypeA plug**
  Connect the device to the USB connector in the mainboard or PC system block.

- **Connection a device with PBD10-R plug**
  During installation the device to the mainboard, make sure that you exactly connect to the internal USB header. Some interfaces (for instance ieee 1394) have the same 10-pins plugs on the mainboard. Connection not to USB interface can cause the damage of device.

**During first using**, don’t connect signal pins of the device to “Reset” pins, because pre installation of software is required.

Switching-on and setting

Before using a device, it is necessary to install drivers [3]. The device should be defined as “virtual serial port” by the OS.

A. **Windows**: the device should be defined as serial COM port(e.g. COM12)

B. **GNU/Linux**: the device should be defined as serial port(e.g. /dev/ttyACM0)

C. **Mac OS X**: the device should be defined as serial port(e.g. /dev/tty.usbmodem****)

In several seconds after connection, a red LED will start to flash, which indicates a proper operation of the device.

For working with the device, a special open-source cross-platform program is available[1] [2].

After drivers installation (if it’s necessary) and setting the software, you can switch off the PC and connect the signal Reset pins.
**Signal pins connection**

The signal pins connection scheme

1 - channel for connection a controlled device. For example: RESET signal on the PC mainboard or modem.

2 - parallel channel for connection manual control. For example, RESET button on the system block.
Operability test

To assure in proper connection of the device to the motherboard USB header, a forced restart of PC is available through the command T1 - to check up RESET signal.

This operation can also be done by using graphics program:

Or manually, give a command T1 to the device (watch p. “Advanced device control”).
Checking the remote host. “Ping” mode.

In the “ping” mode program updates device’s timer only in case a positive signal from ping is received. This mode is used for rebooting, when network connection drops out.

To activate this mode, “Ping mode” should be checked in the main menu.

Then you should choose the address of remote host(ip or url) and timeout in the section “Ping”.
Advanced control.

For easy integration in other systems, the device has simple text protocol: every command begins with the signal «~», then the command, then optional parameter.

The list of available commands

<table>
<thead>
<tr>
<th>Параметр</th>
<th>Назначение</th>
</tr>
</thead>
<tbody>
<tr>
<td>~Wx</td>
<td>Setting the maximum time of waiting a signal from PC, where x is from 1 to 9 (minutes)</td>
</tr>
<tr>
<td>~U</td>
<td>Signal from PC to reset the internal counter</td>
</tr>
<tr>
<td>~T1</td>
<td>Test of RESET signal</td>
</tr>
<tr>
<td>~Px</td>
<td>Timer pause -1, activate -0</td>
</tr>
<tr>
<td>~B</td>
<td>Device reboot</td>
</tr>
<tr>
<td>~I</td>
<td>Firmware version</td>
</tr>
</tbody>
</table>

When the command «~U» is received, device sends the command «~A».

Example of using the device without monitoring app

Windows

- The minimal script for device functioning:

```plaintext
@echo off
SET portname=COM12
:loop
set /p x="~U" <nul >\%portname% ping -n 2 127.0.0.1 > nul
goto loop
```

Device’s port is parameter portname.

The command ping -n 2 127.0.0.1 > nul creates the pause equal to n-1 seconds.
• Script for checking the availability of remote recourse

```bash
#!/bin/bash
PORT=/dev/ttyACM0
while true
do
echo -n "~U" > $PORT
sleep 1
done
```

Device’s port is parameter PORT.

Script for checking the availability of remote recourse
Technical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage, V</td>
<td>5 ± 10%</td>
</tr>
<tr>
<td>The maximum current, mA</td>
<td>50</td>
</tr>
<tr>
<td>Output type</td>
<td>transistor optocoupler</td>
</tr>
<tr>
<td>The maximum output voltage, V</td>
<td>80</td>
</tr>
<tr>
<td>Size, mm</td>
<td>40x14x10</td>
</tr>
<tr>
<td>Temperature range, °C</td>
<td>-40…+85</td>
</tr>
</tbody>
</table>

Guarantee

Guarantee period is 12 month since the moment of selling a device to ultimate end-user. Malfunction, which are identified during guarantee period, caused by the fault of manufacturer, will be eliminate at the expense of manufacturer.

Manufacturer isn’t responsible for the damage to property or health, brought to the consumer or somebody else during wiring the product, starting to use the product or using it. Manufacturer also isn’t responsible for the damage, which is possibly caused by such using.

Repairing and maintenance the product with overdue guarantee period at the expanse of consumer.
References

1. App repository https://bitbucket.org/Rdmr/usb-watchdog-monitor/

2. Windows binary app

3. VCP driver for Windows:
32x https://bitbucket.org/Rdmr/usb-watchdog-monitor/downloads/VCP_V1.3.1_Setup.exe,
64x https://bitbucket.org/Rdmr/usb-watchdog-monitor/downloads/VCP_V1.3.1_Setup_x64.exe