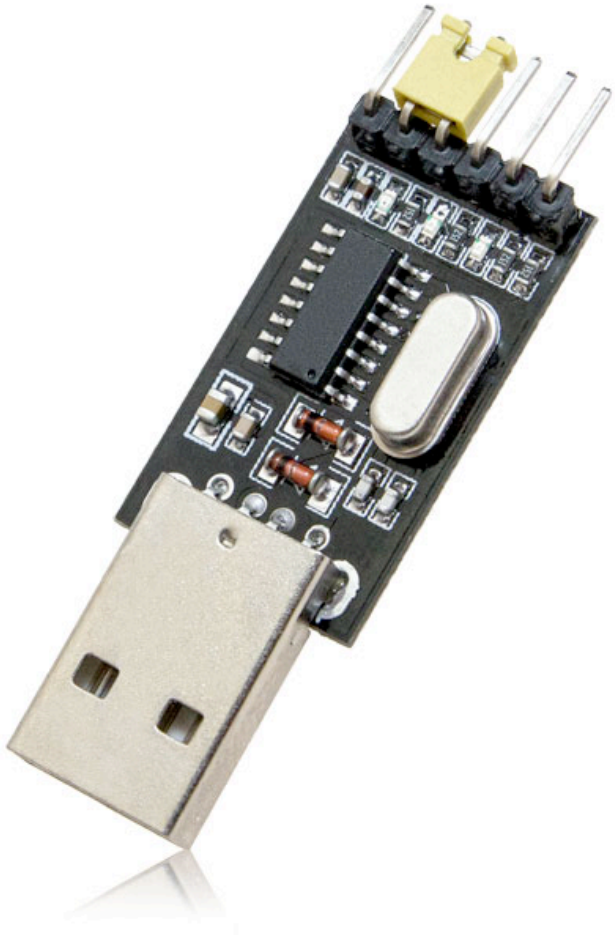
CH340G USB to UART Interface



Technical Informations: 2
- Features: 2
- Dimensions: 3
- Important Notes: 3
- CH341 common Driver Problems 4
  - Mac OSX 10.9 Mavericks Mac OSX 10.10 Yosemite 4
  - Mac OSX 10.11 El Capitan 5
  - Linux 7
  - Windows 7
- Drawing CH340 USB TTL Converter 8
- Drawing CH340 USB TTL Converter 8

Technical Informations:

CH340 is a series of USB bus adapters, that provides serial, parallel or IrDA interfaces over USB bus (only serial interface). The CH340G integrate circuit provides common MODEM signals to allow adding a UART Devices to a computer, or converting existing UART devices to USB interface.

Features:

- ✓ provides a virtual serial port over USB 2.0 port
- ✓ full speed 2.0 USB interface
- ✓ based on 340G chip
- ✓ supports operating systems as follows:
  - Linux
  - Mac OSX
  - Windows
- ✓ supports baud rates from 50 bps up to 2 Mbps
- ✓ supports CH341 driver
- ✓ rail voltage
  - 5V mode 4.5-5.5V
  - 3,3V mode 3.3-3.8V
- ✓ Operating current typ. 12 mA up to 30mA [1]
- ✓ Clock-frequency typ. 12 MHz.
- ✓ Power-on reset time typ. 20 ms up to 50 ms
- ✓ USB A Connector (male)
- ✓ Transmitter baud rate error less than 0,3%
- ✓ Receiver baud rate tolerance < 2%

[1] *please see Important Notes*

Dimensions:

Dimension	incl. Pins	w/o Pins
length	52 mm	45 mm
width	14 mm	14 mm
height	8,5 mm	8,5 mm
weight	5 gr.	5 gr.

Important Notes:

CH340G maximum operating current is **30** mA, **running ESP8266 directly from CH340G is not recommended**.

Typical ESP8266EX current consumption range (w/o SPI Flash):

- deep sleep 10 µA
- Modem sleep 15 mA
- Modem active 50 - 170 mA

CH340G Driver Installation

Actual Driver download overview:

Operating System	download Link
Linux	CH341SER_LINUX_OS.zip
MAC OSX	CH341SER_MAC_OS.zip
Windows	CH341SER_WINDOWS_OS.zip
Android	CH341SER_ANDROID_OS.zip

1. please choose designated download link
2. unpack zip file
3. run installer package

CH341 common Driver Problems

Mac OSX 10.9 Mavericks Mac OSX 10.10 Yosemite

On newer versions of OS X (10.9 and 10.10), when you double-click the install packages inside the CH341 disk image, you may be presented with a type error about not being able to open the files because they are not from an identified developers.

temporarily Solution

4. To get around this, simply **right-click at the CH341 installer package** you want to install, or press **CTRL + mouse click**, if you don't have a right-click. Then **select open** from the menu.
5. A new dialog will open asking if you are certain
   - ... Are you sure you want to open it?
   - **Click Open**, and proceed with the installation

permanent Solution

OSX default setting allows only installing Applications downloaded from App Store or identified developers. **Caution**, this solution will allow installing applications downloaded from any resources!

1. Open **System Preference**
2. If System Preferences appear **click on Security & Privacy** Settings
   - **click on lock sign** for enable making changes
   - assign Administrator privileges within password
   - choose **Anywhere**
3. A new dialog will open
   - Choosing "Anywhere" makes your Mac less secure
   - Click Allow From Anywhere
4. Double Click on CH341 Installer package and proceed with installation of CH341

Mac OSX 10.11 El Capitan

Depending on version of OSX 10.11 EL Capitan will allow (or not) temporarily solution, also on some systems installation of Kext File will be interrupted. Either way temporarily Solution as follows is recommended.

temporarily Solution

1. For installing CH341 driver, simply **right-click at the CH341 installer package** you want to install, if you don't have enabled right-click in System Preferences, Mouse settings **CTRL + mouse click**. Then **select open** from the menu.
2. A new dialog will open asking if you are certain
   - ... Are you sure you want to open it?
   - **Click Open**, and proceed with the installation

If installation fails, OSX EL Capitan will not allow installing required Kext Files, proceed installation with permanent Solution.

permanent Solution

OSX EL Capitan will not allow change system preference / security settings during running OSX. OSX El Capitan must restarted in recovery mode, **please read steps as follows carefully**.

1. **Close all Applications, save all Files**
2. In the Apple menu , choose **Restart**
3. As the computer restarts, hold down the **Command (⌘)** in **combination** with **R key**.
   Apple sign will appear for a while (up to couple of minutes) until recovery mode will appear.
4. In recovery mode click on **System Preference**
5. In System Preference **click on Security & Privacy** Settings,
   - **click on lock sign** for enable making changes
   - assign Administrator privileges within **password**
   - choose **Anywhere**
6. A new dialog will open
   - Choosing "Anywhere" makes your Mac less secure
   - Click **Allow From Anywhere**
7. After saving Security & Privacy Settings restart by click on choose **Restart**
8. After restart **double click on designated CH341 Installer package** and proceed with installation of CH341
   - For restore EL Capitan security setting please follow step 9 to 13

Restore El Capitan security settings

For security reasons it is recommended change security settings to OSX El Capitan default settings.

9. After installing CH341 Package click Apple menu , choose **Restart**
10. As the computer restarts, hold down the **Command (⌘)** in **combination** with **R key**.
    Apple sign will appear for a while (up to couple of minutes) until recovery mode will appear.
11. In recovery mode click on **System Preference**
12. In System Preference **click on Security & Privacy** Settings,
    - **click on lock sign** for enable making changes
    - assign Administrator privileges within **password**
    - choose Mac App Store and identified developers
13. After saving Security & Privacy Settings restart by click on choose **Restart**

After restart CH341 driver will be installed and security settings will be default El Capitan settings.

In case of error messages during driver install kext privileges has to be changed (see next chapter Changing OSX El Capitan kext privileges).

Changing OSX El Capitan kext privileges

Normally, whole directory that contains the kext files must be owned by the **root:wheel** user. If it's not, errors during loading phase of kext (kernel extension) will appear. Depending on OSX El Capitan version System Integrity Protection has to be disabled in recovery mode as follows.

1. **Close all Applications, save all Files**
2. In the Apple menu , choose **Restart**
3. As the computer restarts, hold down the **Command (⌘)** in **combination** with **R key**.
   Apple sign will appear for a while (up to couple of minutes) until recovery mode will appear.
4. In recovery mode click on **Utilities menu choose Security Configuration**
5. In System Configuration **disable System Integrity Protection** checkbox
   - **click on apply** for enable making changes
6. after rebooting, restart Mac kext files will be writable, if not please follow next solution.

Depending on OSX 10.11 version previous version will not work, because of NVRAM options. On some system you can change kext privileges by using Terminal in regular mode, so if following steps are not working change system into recovery mode as in previous solution.

1. Open Terminal
   - in regular mode **Launchpad** find **others click Terminal**
   - in recovery mode **Utilities menu choose Terminal**
2. In Terminal check System Integrity Protection status by using command as follows
   - **sudo csrutil status** press ↩ (enter)
   - assign Administrator privileges within **password** (password will not appear) and **press** ↩ (enter)
   - message as follows will appear **System Integrity Protection status: enabled.**

3. For changing System Integrity Protection status use command as follows
   - csrutil disable **press** ↩ (enter)
   - message as follows will appear **Successfully disabled System Integrity Protection. Please restart the machine for changes to take effect.**
   - Follow instructions as above

Linux

CH341 Driver is already preconfigured in Linux Kernel.

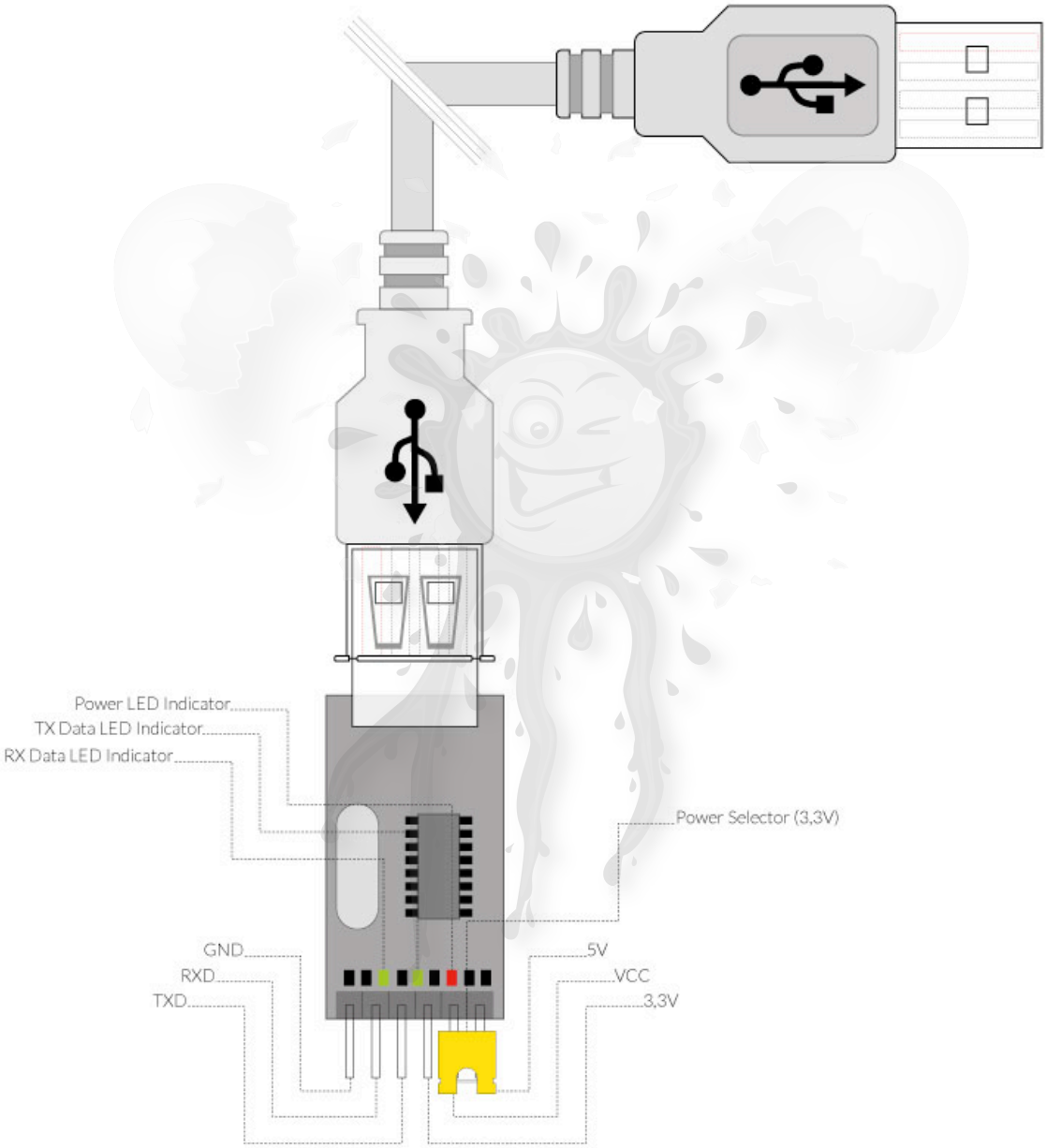
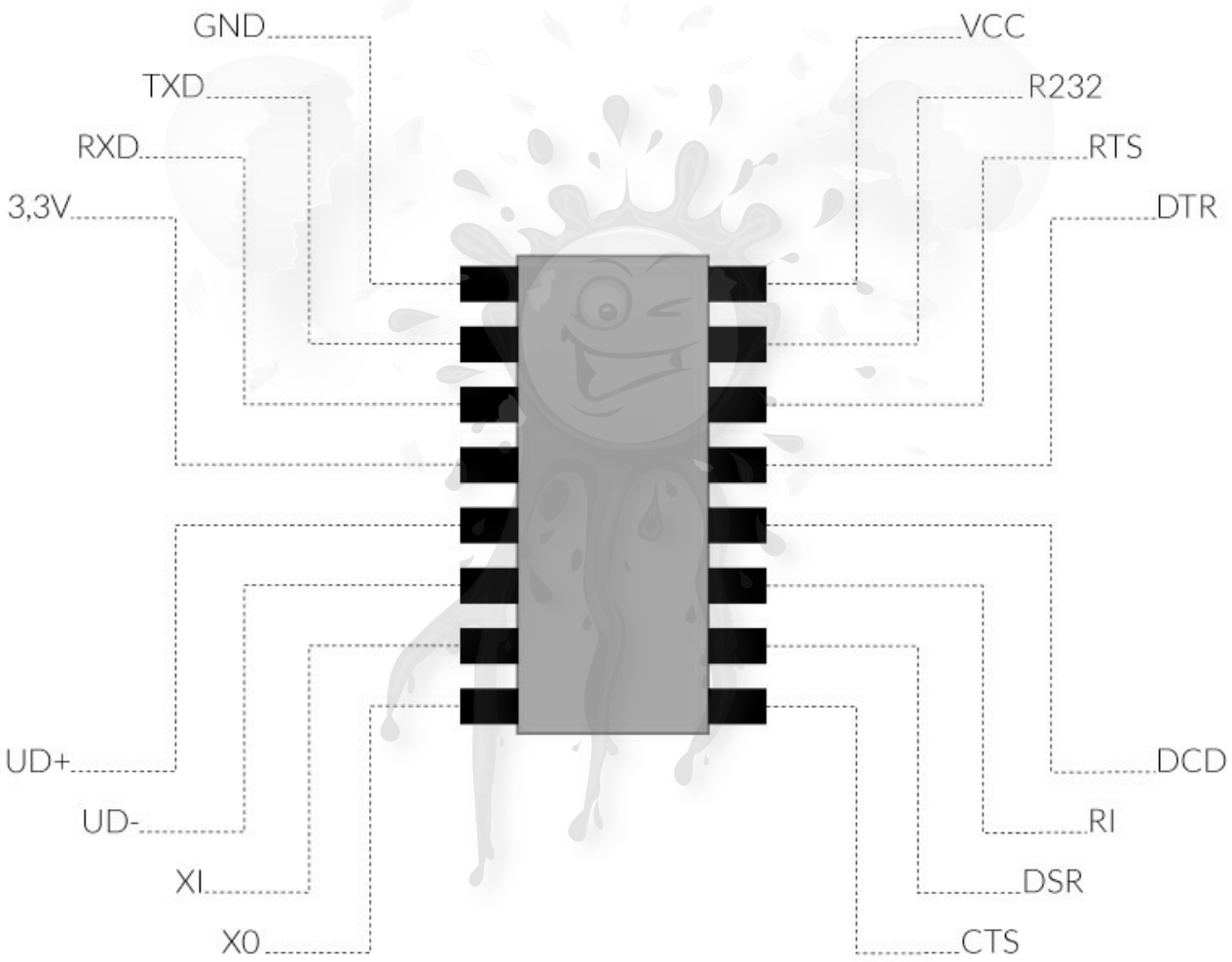
Windows

Until now no issues during CH341 Windows Installation are known. If problems during installation appear don't hesitate contacting us by mail.

Android

CH341SER_ANDROID_OS Driver Package is based on typical Android OS. For running CH340G on Android x86 within virtual machine (VirtualBox,...) Driver Package has to be installed on host system. Within our experience until now USB is not supported on X86 Virtual Machines.

Drawing CH340 USB TTL Converter



CH340G Pinout