HE853 Control Documentation v1.3

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1 Introduction

The HE853 Control project is dedicated to create a Windows SDK for the HE853 USB dongle of the Home Easy home automation products since the vendor does not provide one.

The SDK consists of GPL licensed tools and a LGPL licensed library that can be used from other applications.

Out target audience are power users and software developers who wish to extend the usage of the HE853 USB dongle beyond the limits of the vendor software.

Most information this project is based on was gathered through reverse engineering. So not all details of the used communication protocol are known and documented.

For more information about the Home Easy home automation products please refer to the vendor page: `http://www.elro.eu/en/products/category/home_automation/home_easy/zenders2/pc_afstandsbediening_usb_dongle`

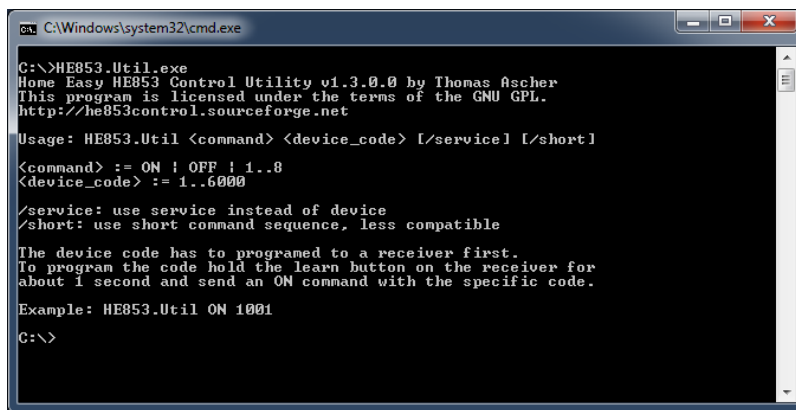For more information and the latest packages please refer to the project page: `http://he853control.sourceforge.net/`

1.1 Prerequisites

For usage at least Microsoft .NET Framework 2.0 has to be installed on your system: `http://go.microsoft.com/fwlink/?LinkId=131000`. For development Visual Studio 2010 is recommended.

2 Tools

All tools are located in the installation directory and support the following commands:

- On: receiver will switch on

- Off: receiver will switch off

- Dim 1–8: reciver will adjust dim to specific level if supported

2.1 Command Line Utility – HE853.Util.exe

Usage: HE853.Util <command><device_code>[/service] [/short]
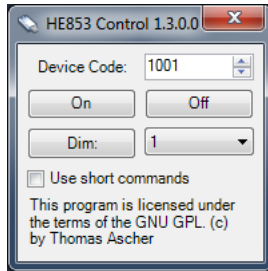
<command>:= ON — OFF — 1..8
<device_code>:= 1..6000

/service: use service instead of device
/short: use short command sequence, less compatible

Example: HE853.Util ON 1001

2.2 GUI Application – HE853.App.exe

Enter a specific device code and click the buttons to send a specific command.

2.3 Coupling Dongle with Receivers

Before a receiver reacts to commands of the USB dongle a specific device code has to be programmed to the receiver first. A device code is a number between 1 and 6000 and can be used by multiple receivers.

To program a device code, use the command line utility or the GUI application. Press the learn button on a receiver for about 1 second. Then send an ON command with the desired device code from the command line utility or the GUI application. The receiver will now react to commands with this device code.

To clear the programmed device code press the learn button on a receiver until the LED on the receiver starts to flash.

2.4 Service – HE853.Service.exe

The service HE853.Service is for advanced users. It is meant for scenarios where multiple applications have to access the HE853 dongle concurrently. Both the utility and the GUI application support the */service* switch that makes them use the service instead of using the device directly.

2.4.1 Configuration

The HE853 RPC Service is configured to start manually per default. To start the service or change this behaviour use service control panel.

3 Development

For development at least Microsoft .NET Framework 2.0 is required. Currently the code is not compatible with Mono since Win32 API functions are used.

3.1 Using the Library – HE853.dll

The library can be used by any .NET language by referencing the HE853.dll assembly from the installation directory or via COM. Please note that the assembly is compiled as Any CPU and works with x86 and x64 platform configurations.

Visual Studio 2010 sample projects for the languages C++, C++/CLI, C# and Visual Basic are located in the installation folder in *Samples*.

Please note that the library is licensed under the term of the LGPL. This means it is possible to use the library in commercial applications but code changes to the library have to be made available on distribution.

3.1.1 C# Sample Code

```
HE853.IDevice device = new HE853.Device();
if (device.Open())
{
    device.SwitchOn(1001, false);
    device.Off(1001, false);
    device.Close();
}
```

3.2 Using the RPC Library – HE853.Rpc.dll

The RPC library is not designed to work via COM. It uses .NET Remoting IPC for communication. The library does only work in combination with the service application.

3.2.1 C# Sample Code

```
HE853.Rpc.RegisterClient();
HE853.IDevice device = new HE853.Device();
if (device.Open())
{
    device.SwitchOn(1001, false);
    device.SwitchOff(1001, false);
    device.Close();
}
```

3.3 Deployment

The easiest method of deployment is by installing the HE853 Control MSI setup on the target system. The installation performs all required steps:

- Installation of HE853.dll to the global assembly cache

- Registration of HE853.dll for COM usage

- Registration of HE853.Service.exe

If you deploy .NET applications you can simply install or copy the HE853.dll with your application as private assembly.