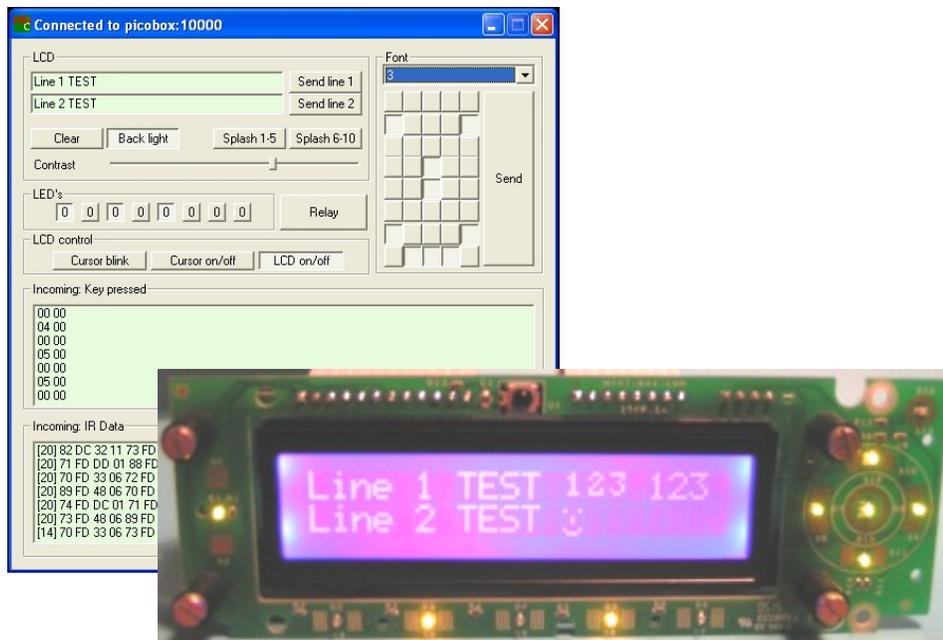


# Testing the software and hardware capabilities of the USB-LCD-20x2



- **Find and start the test software to accessing the USB-LCD-20x2**

After successfully completed driver and software installation the USB-LCD-20x2 device is ready to use. From now you are able to use the USB-LCD-20x2 device as a standalone, hardware user interface for a personal or embedded computer.

The USB-LCD-20x2 device can display texts, can receive button pressing or infrared remote controller emitted signals and can start or shut down a computer from simple button pressing or from remote control button pressing. The LCD screen has ON/OFF controllable backlight source and variable contrast level.

You can also define 8 custom characters and save them to the modules Character Generator RAM (CG-RAM).

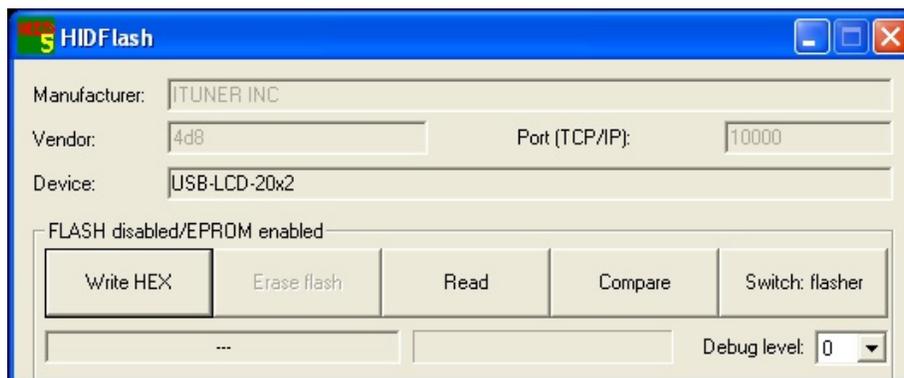
- **Important Notes:** The Character Generator RAM is a volatile memory zone and after a general power off its content will loose!

You can define ten splash screen contents too. The splash screen contents are text strings, LCD backlight and button LED lights and they will be always displayed when the USB-LCD-20x2 device starts. The screen contents and lights can be allowed or denied and shown for different intervals of time.

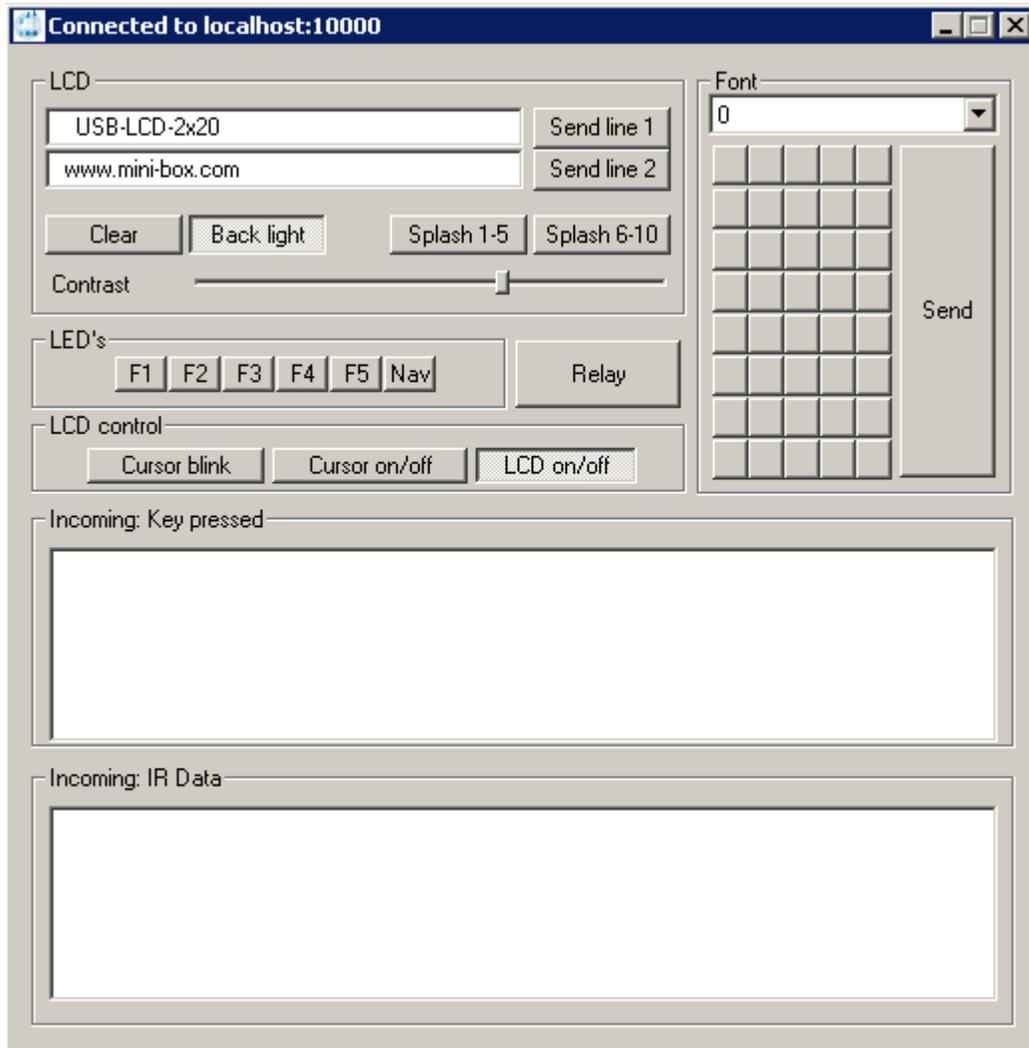
- **Important Notes:** The Splash Screen text and settings are stored in the internal EEPROM and external EEPROM, non-volatile memory zones of the LCD device, therefore after a general power off the device will store its splash screen content.

Start using the USB-LCD-20x2 device means three easy steps as follows:

- Plug in the USB-LCD-20x2 device in a free USB connector or if it is already plugged turn on your computer
- Find and start the USBLCDFlasher.exe if you want to update the firmware or the USBLCDServer.exe if you want to test the LCD features.

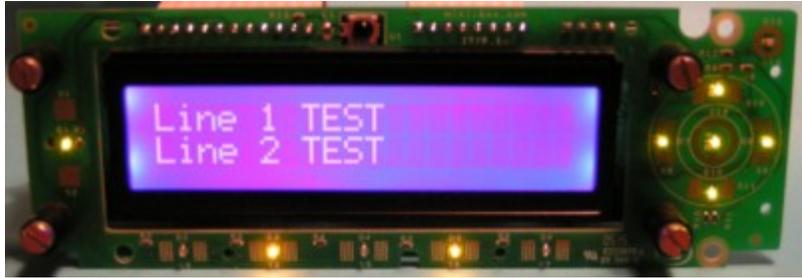


- Find and start the USBLCDClient.exe. The USBLCDClient.exe is the main testing and configuring software, let's start using it.



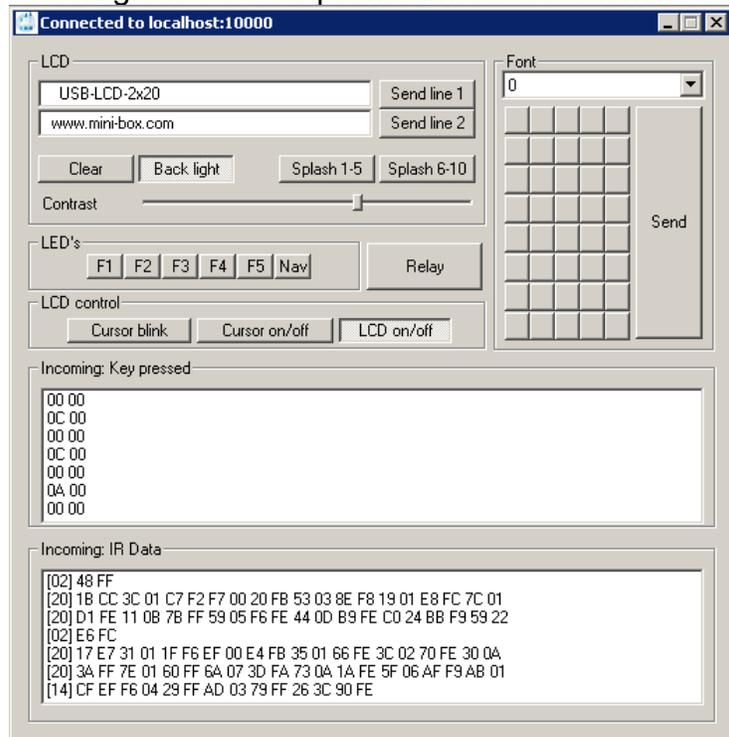
• **Configuring and using the USB-LCD-20x2 module**

The first two input fields represent the actual LCD screen contents. You can type a 20 character long text (including spaces or special symbols) in each input fields and after by pressing the “**Send line 1**” or “**Send line 2**” button these text will be copied on the LCD screen, and will shown like this:



The “**Clear**” button deletes the whole LCD screen content. By pressing it all displayed text will disappear from the LCD screen.

The “**Backlight**” button serves to switch ON and OFF the LCD backlight. The immediate effect of pressing this button you will observe on the LCD screen. Please consider the backlight is a LED based solution so don't expect to lights up your room. The backlight feature helps in dark or weak illuminated places.

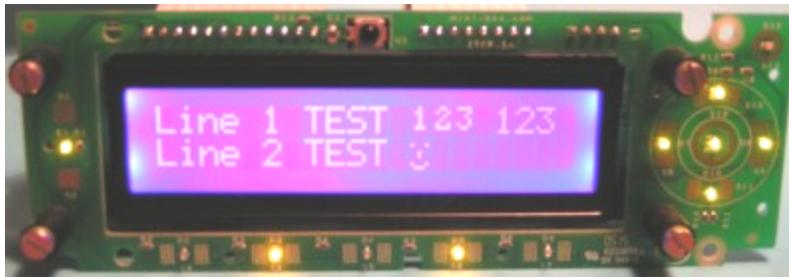


The “**Contrast**” slide bar can be used to set up a proper contrast ratio for the LCD (depends on viewing angles).

In the “**LED’s**” field are some buttons, which can turn ON and OFF the buttons backlights.

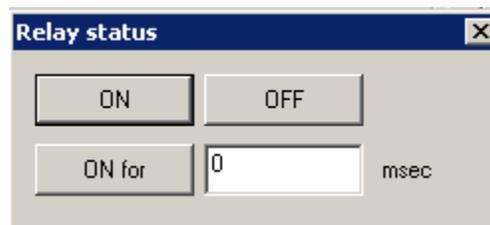
The “**Font**” field is a mini character editor for CG-RAM. By pressing or releasing some buttons (each representing a pixel in the character field) the user is able to designing a custom character. After the character shape is ready a custom character can be selected from a roll down menu (from 0 to 7). This numbers defines the CG-RAM locations, which can be reconfigured with custom character shapes. Pressing the “Send” button the custom character will be written immediately into the USB-LCD-20x2 device’s CG-RAM memory.

As you can see in the first row there are three custom characters, the middle “123”, with smaller character than the normal “123” which followings after



the modified characters. In the second row appears the well known “smiling face” and it is a user-designed character too.

The “**Relay**” button serves to switch the onboard mini switcher ON or OFF or ON for a period of time. Pressing the Relay button a configuring window will be displayed:



The ON period is configurable in millisecond steps. Pressing the “ON for” button the time value will be sent to the USB-LCD-20x2 device. The “ON” and “OFF” buttons will sets the 0x0000 and 0xFFFF values for the device. The effect will be immediately.

The “**Cursor blink**”, “**Cursor on/off**” buttons are controlling the LCD cursor. It could be set to blinking or not, and could be turn ON or OFF.

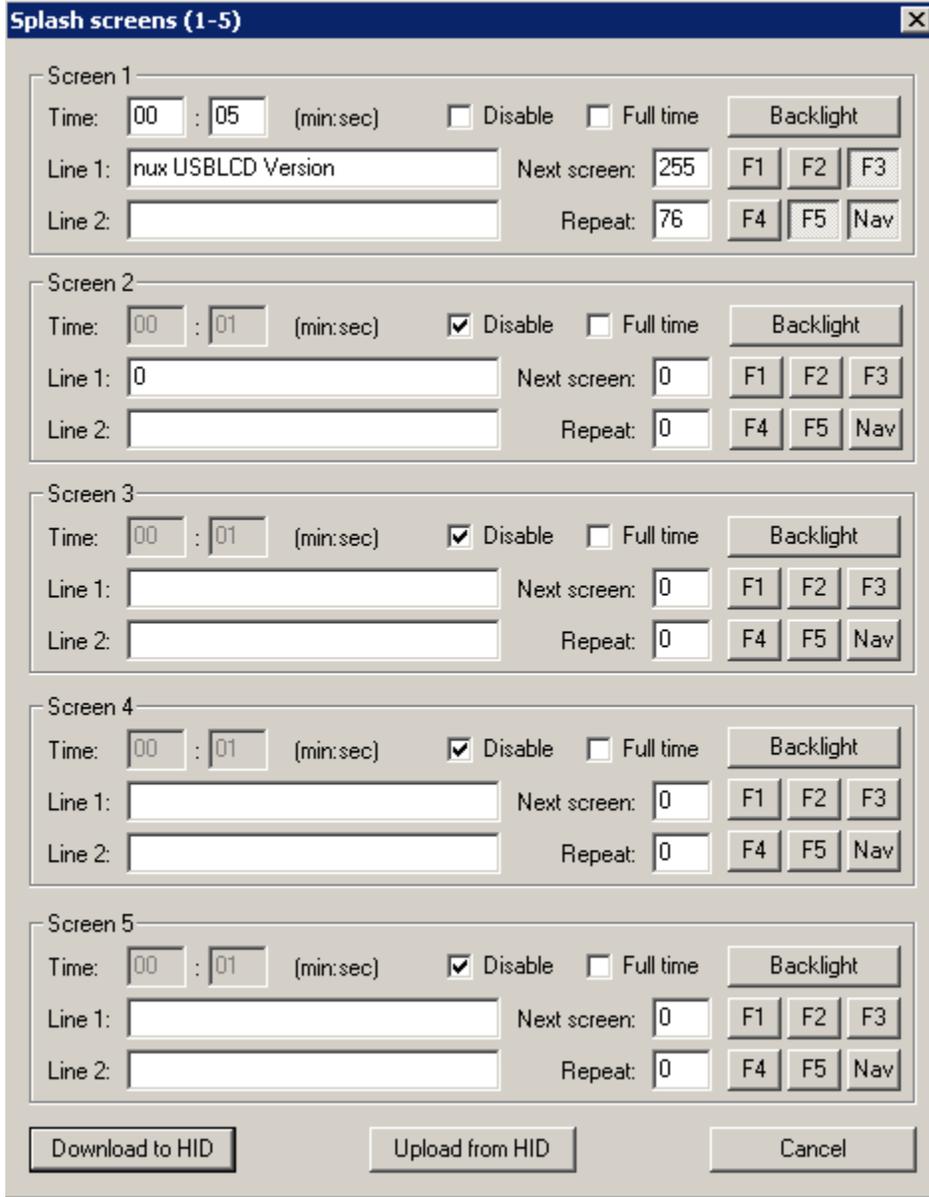
The “**LCD on/off**” button controls the main LCD screen by switching ON or OFF without loosing the displayed text content.

This buttons have pure demonstrative meaning. This options could be included in a more sophisticated user software.

The last two fields have pure informative content. The first is about the key pressing. Each key pressing and releasing will be notified in the field. The “03 00” like numbers means a button was pressed, the “00 00” like numbers means the same button was released. The second field is about incoming infrared signals. When the USB-LCD-20x2 device receives an infrared signal burst it start measuring the impulse length and after the signal burst ends it will send it up to the GUI.

• **Configuring the splash screen contents**

Before we've missed there exist two more buttons, the "Splash 1-5" and the "Splash 6-10". Pressing this buttons a new menu point will be appearing in the software:



The preset values window are the same for each group of splash screens and allows defining five different splash screen content, which will be displayed when the USB-LCD-20x2 device started. The difference between the two splash screens content group is the storage location. The first five splash contents are saved in the controller's internal EEPROM; the next five are saved in external EEPROM module (if it is installed onboard). To see the initial set values the user

must hit the “**Upload from HID**” button and the USB-LCD-20x2 device will send the stored values and the GUI fills the configuration table fields.

Each screen contents have three options, a “**Time**” field, a “**Disable**” and a “**Full time**” check buttons.

- If neither the buttons are checked the “**Time**” field is active and allows minute and second settings. It means the screen content will be displayed on device startup for seconds or minute long time.
- If “**Disable**” is checked this screen content will not be displayed, and the “**Time**” field will become disabled for this type of settings.
- If “**Full time**” is checked this screen content will be displayed continuously until the main software application will start and initialize the USB-LCD-20x2 device.
- “**Backlight**” and “**L1**”, “**L2**”... buttons serves to configuring each splash content’s lights. If the buttons are pressed they turns ON the afferent light sources i.e.: button’s LED or LCD backlight.

After all settings are done the user **must hit** the “**Download to HID**” button to apply the changes until next configuration session.

To try the splash screen effect the USB-LCD-20x2 device must be disconnected for a couple of seconds from the USB socket and after reconnected to it. Observe the configured text will appear in (for) configured order and time interval on the LCD screen.

