8.1. Control via Ethernet

General information

Outward appearance of 8SMC4-USB-Eth adapter

There is 8SMC4-USB-Eth - a special Ethernet – USB converter for 8SMC4-USB control. It is based on Cubieboard2 oneboard computer with OS Linux inside it and allows you to control 8SMC4-USB devices remotely. The process of operation with all axes of the system via Ethernet is very similar to operation with a single motor controller via USB. A simplified scheme of the described system based on 8SMC4-USB-Eth adapter is shown below:
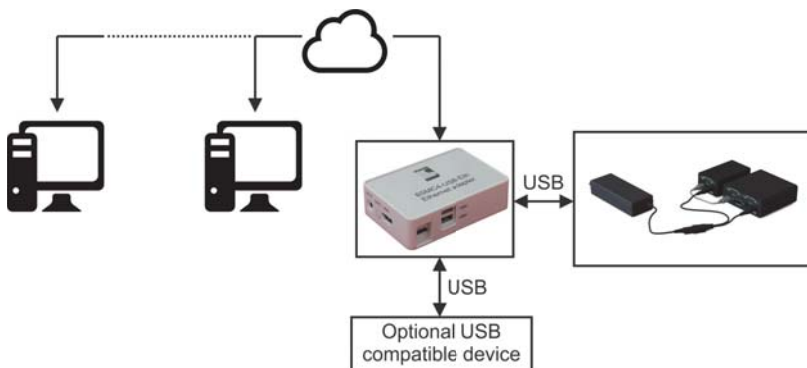
All software supplied with the controller is compatible with Windows 8, Windows 7, Windows Vista, Windows XP SP3, Linux, and Mac OS X (32-bit and 64-bit versions). The software package also includes XILab user interface, which gives full access to all motion functions and settings.

The appearance of the system from different perspectives (all necessary connectors in current version are marked with bold):

Front view. Left to right: **power connector**, **on/off switch**, *HDMI connector.*

View from the right. Left to right: micro-SD card connector, **two USB type A female connectors**.

Back view. Left to right: **Ethernet connector**, *mini-USB type B, switch to transfer into FEL mode, earphone and line in connectors.*

View from the left. IR receiver.

Main requirements

Network configuration

- You must have a DHCP server that supports an automatic distribution of ip addresses.
- Server and your computer must support IPv4 protocol.
- Port 49150 should not be blocked. The cause of blocking can often be the presence of antivirus software, or program which monitors and filters network traffic (firewalls).

Other

- 220V socket should be available.
- Ethernet cable, USB cable.

Getting started

- Before launching, connect controllers to the board adapter with USB cable. At the same time, it is assumed that controllers can be connected to the motor and energized from power supply (see one axis configuration for more details).
- Connect board adapter via Ethernet cable to the same subnet that contains the control computer, DHCP server and supply it with power adapter (via 5V - 2A connector). Wait for a minute to finish Linux boot on the onboard computer.
- Launch XiLab and make the following.

At first start, XiLab opens controller detection window with no devices found.
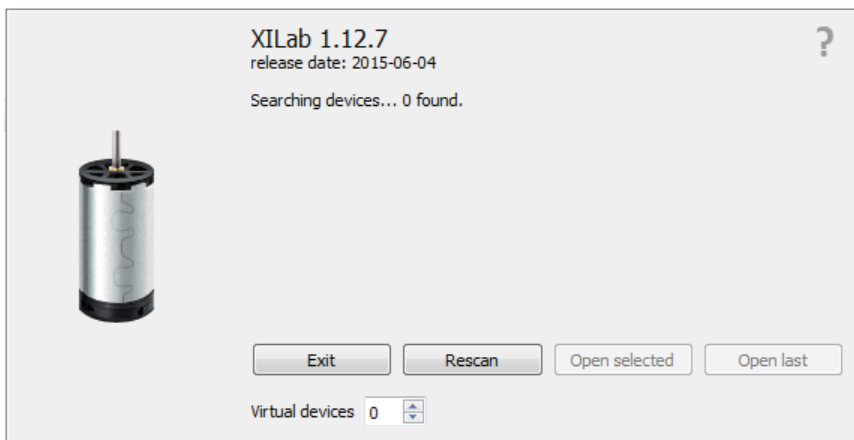
Add virtual XIMC controller by increasing the number of Virtual Devices in the bottom part of window and click Rescan. Then choose Virtual XIMC, SN1 and click Open selected.
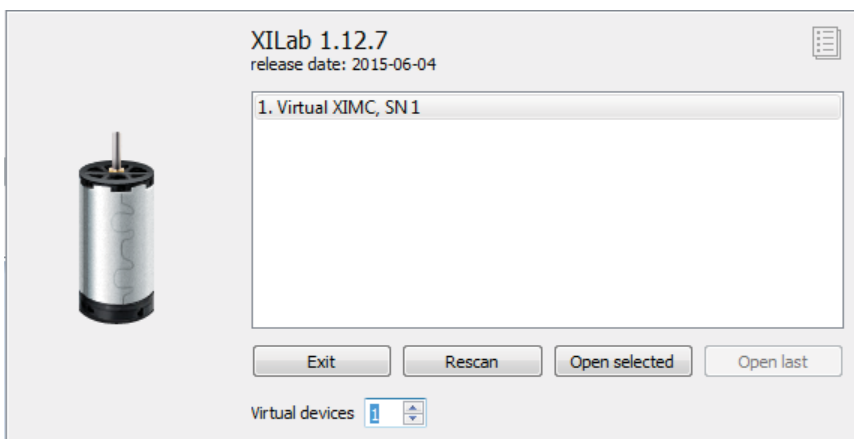
XiLab main window with single axis mode will appear. Go to Settings... and choose Program configuration (for detailed information please refer to XiLab general settings). Check Enumerate network devices in Device detection settings and press "Scan for local XIMC servers" button. XiLab will use broadcast request to find available adapters, if an adapter was found its IP will appear in the "IP/hosts" list. You can also edit address list manually if desired.
Click OK and close XiLab.
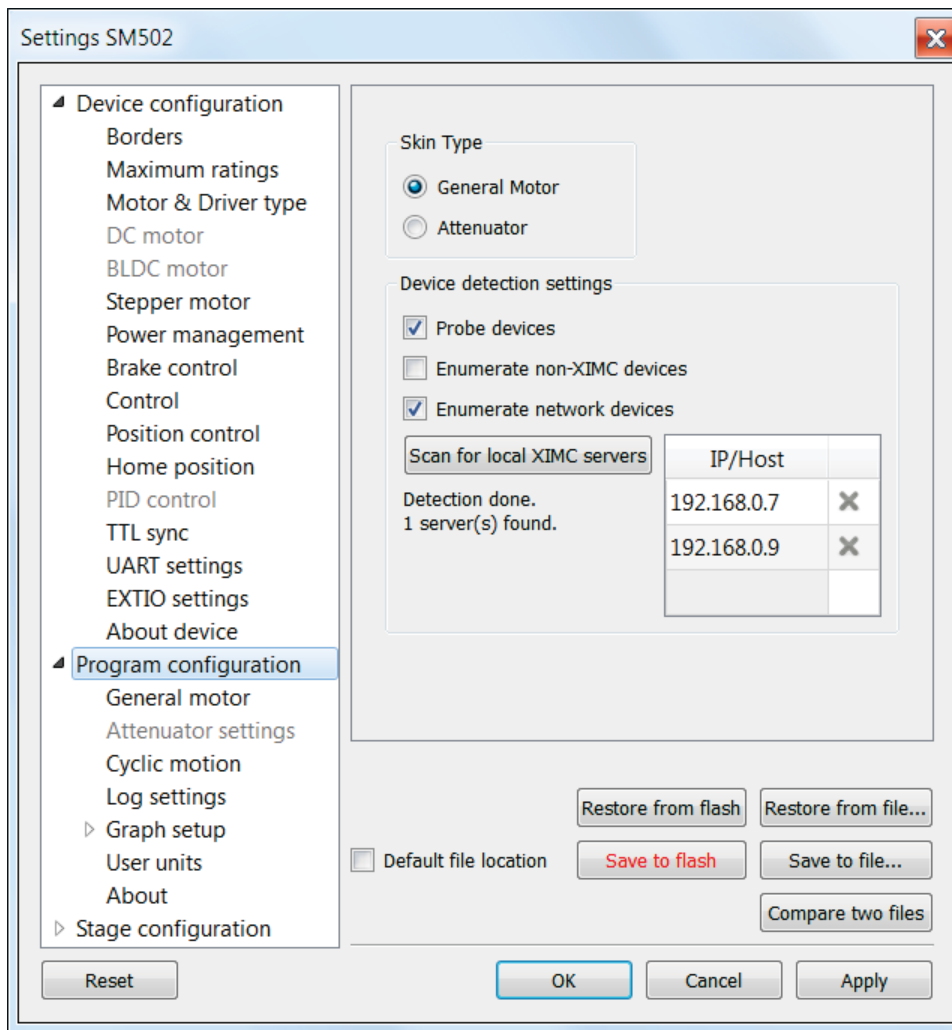
When you restart XiLab it will find all axis connected to the system. In controller detection window choose an axis you need. You can control it in single-axis mode or in multi-axis mode if more than one axis was chosen. For additional information please refer to Getting started with XiLab software and XILab application User's guide

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Note. Once the device IP address has been found, it should be understood that moving the device to another location may lead to a change in its IP.

Note. Working with multiple adapters may cause a problem when the same board responds in a broadcast requests. You can find a new device by two different ways :

- Disconnect other axes, find the device on the network, connect all again.
- Press Scan for local XIMC servers button until you find sought-for device.