8SMC1-USBh

1.5A Microstep Driver with USB Interface

Quick start user guide

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1 Introduction

Congratulations on your purchase of the 8SMC1-USBh stepper motor controller. This Quick start user guide describes how to set up and start the 8SMC1-USBh stepper motor controller. Refer to the 8SMC1-USBh User Manual (PDF file) for more detailed information about the operation and programming of the 8SMC1-USBh stepper motor controller.

2 System requirements

8SMC1-USBh is designed to work with your personal computer (PC) using Microsoft Windows 2000/XP/Vista operation systems or mobile devices with Microsoft Windows Mobile 5.0 and higher. Presence of the USB 2.0 or 1.1 compatible host port on your host device is necessary.

8SMC1-USBh can operate with bipolar stepper motors according to the technical specification and wiring requirements. Maximum allowable average phase current is 1.5A, rated voltage is 40V.

3 Software installation

Use this section to get software installation quickly. Refer to the User Manual 4.1 for more detailed information.

Make sure that all 8SMC-USBh devices are unplugged and switched off. Turn on computer. Insert the CD-ROM labeled "8SMC-USBh" in your CD-ROM drive or download the latest software from www.standa.lt, unzip "8SMC1-USB(h) Soft.zip" software package and open main folder. Open "SMCVieW and VISA driver" folder and run setup.exe and following to Installation Wizard instructions (see Figure 1).
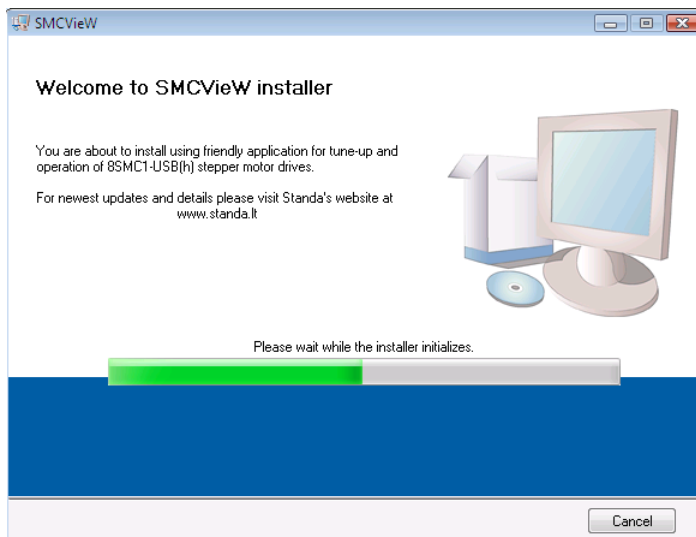
Figure 1. Software installation.

3.1 Other software installation

For information of other software installations (for programming 8SMC1-USBh controller on C, C++, Basic, Delphi, MatLab and other languages excluding LabVieW) refer to the User Manual.

4 Hardware installation

4.1 Equipment which is necessary for successful installation

Note: All 8SMC1-USBh controllers that are delivered with motorized stages are equipped with correct current sensing resistors. All other 8SMC1-USBh controllers are equipped with 2 Ohm current sensing resistors for stepper motors, where rated current is 400 mA (unless another is specified).

− **USB A-B cable.** It connects 8SMC1-USBh to PC. Use only operable USB cables! Defective USB cables may cause the 8SMC1-USBh to malfunction.
− **Stabilized DC power supply** with 2 mm central pin connector. Dimensions and polarity are shown on Figure 2 and Figure 3. Power supply rated current must exceed average stepper motor rated current, by no less than two times. Power supply must never exceed 40V. Power driver can be damaged if higher voltages are applied.
− **Motorized stage.** If you use third party motorized stages or stepper motors, make sure that current sensing resistors installed in 8SMC1-USBh correspond to stepper motor rated current. For more information see User Manual 2.1 and 4.2.
− **Stage to controller cable.** It connects 8SMC1-USBh to translational or rotational stage. This cable is plugged to 8SMC1-USBh by standard 15 Pin DSub connector according to Figure 4. If you use handmade motorized stage to controller cable make sure that it configures with Figure 4 and there is no contact between stepping motor phase windings and 8SMC1-USBh ground. The power driver will be damaged if such grounding present.
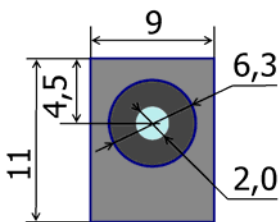
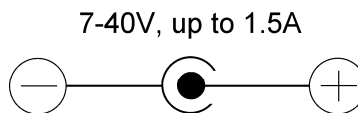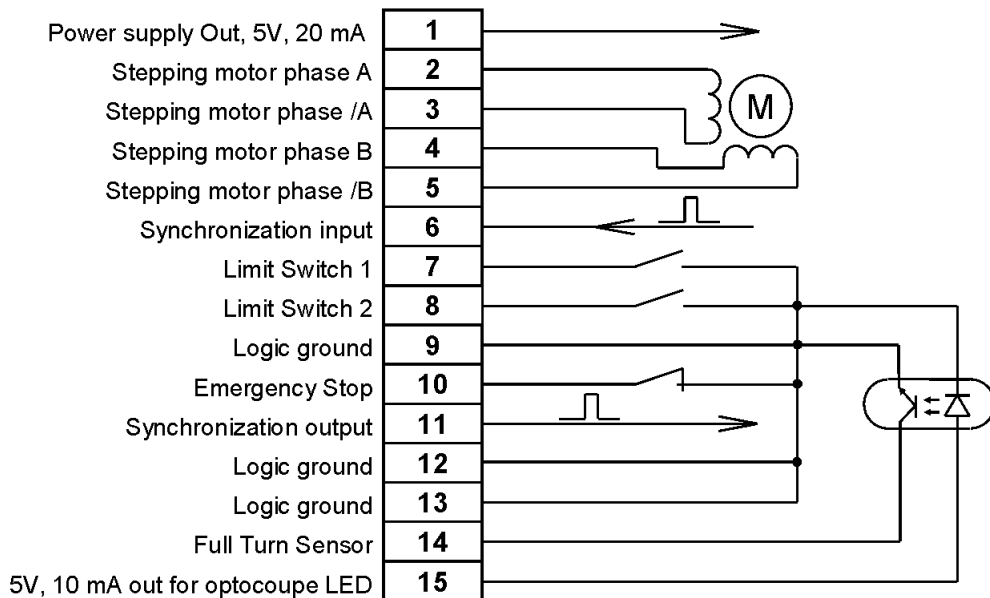**Figure 2.** Power In connector. Dimensions.

7-40V, up to 1.5A

Figure 3. Power In connector. Pinout.

Power supply Out, 5V, 20 mA	1
Stepping motor phase A	2
Stepping motor phase /A	3
Stepping motor phase B	4
Stepping motor phase /B	5
Synchronization input	6
Limit Switch 1	7
Limit Switch 2	8
Logic ground	9
Emergency Stop	10
Synchronization output	11
Logic ground	12
Logic ground	13
Full Turn Sensor	14
5V, 10 mA out for optocoupe LED	15

Figure 4. Wiring diagram.

4.2 Connection

− Make sure that DC power supply is off.
− Use 'Stage to controller cable' to connect motorized stage to 15-pin connector on 8SMC1-USBh front panel (see Figure 5).
− Connect DC power supply to Power connector on 8SMC1-USBh front panel.
− Switch the DC power supply on.
− Use 'USB A-B cable' to connect PC to USB connector on 8SMC1-USBh front panel.
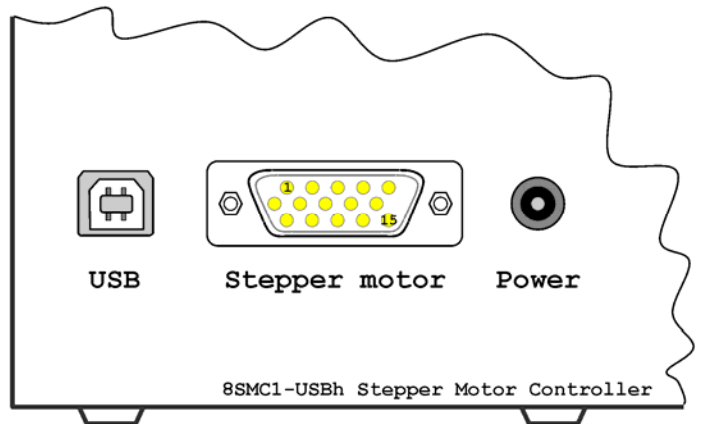

Figure 5. 8SMC1-USBh Stepper motor controller front panel

5 First start

5.1 First connection to PC

Figure 6. Hardware wizard 1st screen

     Windows New Hardware Wizard will start after first connection of 8SMC1-USBh controller to PC. Wait while Windows will find a new hardware and install driver for it. Depending on a Windows version it may pass automatically or demand to pass several steps:

o The main window of the Hardware Wizard will appear (see Figure 6). Choose "No, not this time" and press the "Next>" button. On some old versions of Windows XP this screen might be skipped.

Figure 7. Hardware wizard 2nd screen

o Choose (see Figure 7) Install the software automatically (Recommended) and press the "Next>" button. Wait until installation is completed and press "Finish" button (see Figure 9).
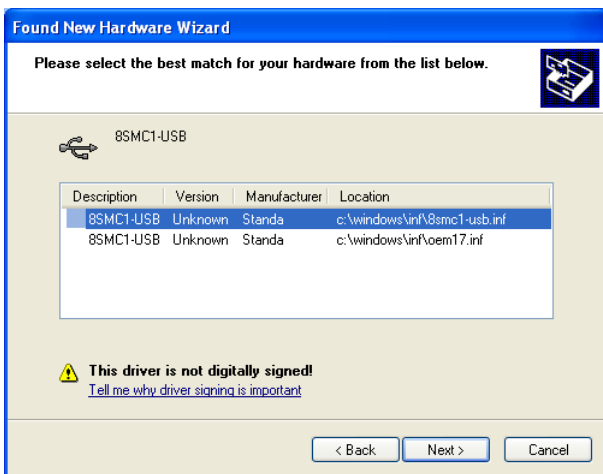
Figure 8. Hardware wizard 3rd screen

o If other 8SMC1-USBh controllers were installed on computer earlier, screen Figure 8 may appear. Choose 8SMC1-USB.inf and press "Next" button.
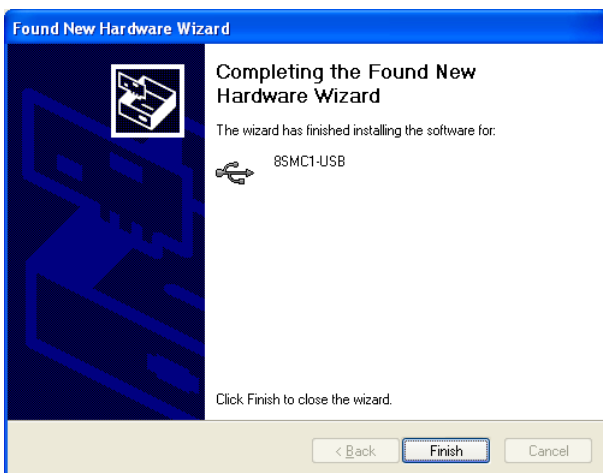

Figure 9. Hardware wizard last screen

5.2 First start with SMCVieW

SMCVieW is a friendly graphical user interface for control, monitoring and tuning your stepping motors. It can also be used for easy setup and save/load of all parameters for each stepping motor. Interface supports up to 30 drivers simultaneously. Use this section to start with SMCVieW quickly. Refer to the User Manual 5 for more detailed information.

Turn the power of stepping motor controller on. Press "Start", choose "Programs" group, then "SMCVieW" subgroup and "SMCVieW" application. After start screen like the one on Figure 10 will appear.
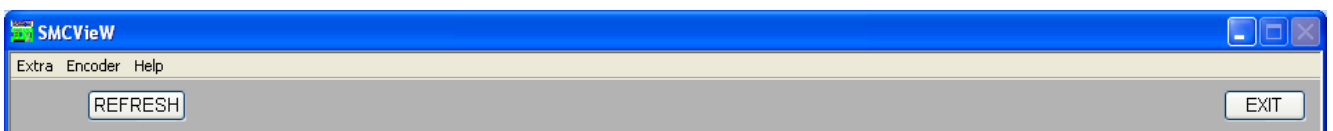

Figure 10. SMCVieW main screen. No 8SMC1-USBh drives found

Press "REFRESH" button. All available 8SMC1-USBh devices will be found. Interface can represent up to three devices simultaneously. If more than three 8SMC1-USBh devices are used at the same time, slider is displayed at the left side of SMCVieW interface (see Figure 11).
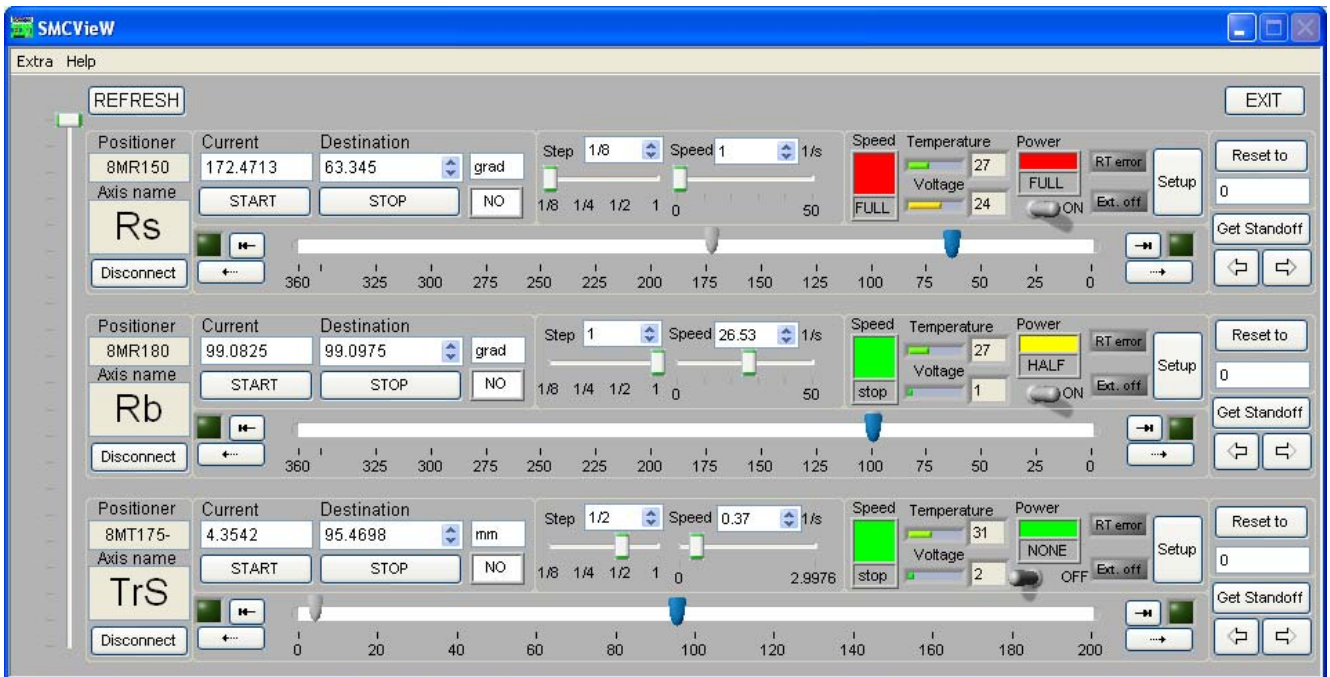

Figure 11. SMCVieW main screen. Four 8SMC1-USBh drives found

Open Setup and choose Positioner window (see Figure 12). This window is used for loading a set of installation-specific settings for the selected positioner. Choose the Manufacturer, Model name and appropriate wiring diagram. Press **Load Button** when selection is made. All fields of "Setup" will be changed to the values specific for your positioner.
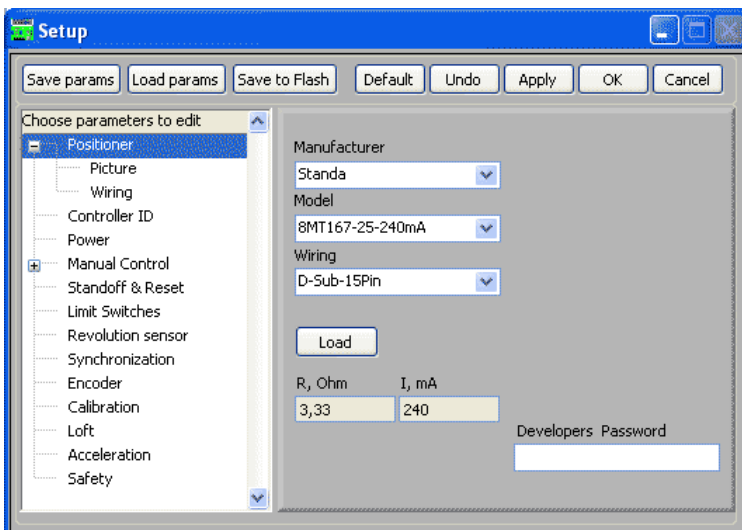

Figure 12. Positioner setup screen

Then close Setup and press **Reset to** button (see Figure 11). Stage calibration will be performed using predefined data for stage that you choose in Setup->Positioner window. Controller is ready to work.

For running stage choose appropriate speed (see Figure 13) and destination position (Figure 14) and press **START** button.
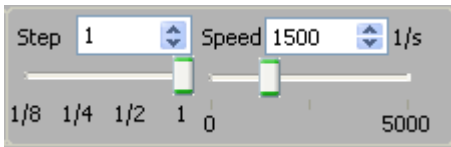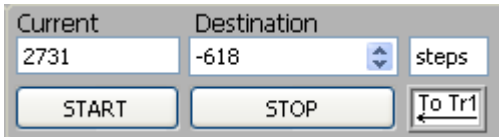

Figure 13.

Figure 14.

6 More detailed information

Use this Quick start user guide for quick start only. Refer to the User Manual for more detailed information.