

8DCMC1-USB

**USB powered ultra compact
digital positioning control unit
for DC brush motors**

**Quick start guide
for Windows XP**

8/19/2009



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1 Introduction

Congratulations on your purchase of the 8DCMC1-USB control unit! Forget about large and expensive servo motor controllers. Forget about special power supplies, power cords etc. All that you need: DC servo motor, 8DCMC1-USB motor controller and USB cable, NO More! No external heat sink and power dissipation! 8DCMC1-USB module size is only about usual key ring so you can put it directly on worktable without special mounting. It fits for almost all compact DC brushed motors up to 6W equipped with encoder or potentiometer feedback. It is compatible with almost all operating systems (Windows Vista, Mac OS X, Linux etc.).

This Quick start guide describes how to set up and start 8DCMC1-USB with XILab software for Windows XP. Refer to the [8DCMC1-USB datasheet](#) for full data about 8DCMC1-USB specification. If you want to make you own applications for 8DCMC1-USB control unit, see Development Kit folder of software package.

2 System requirements

For successful installation you need:

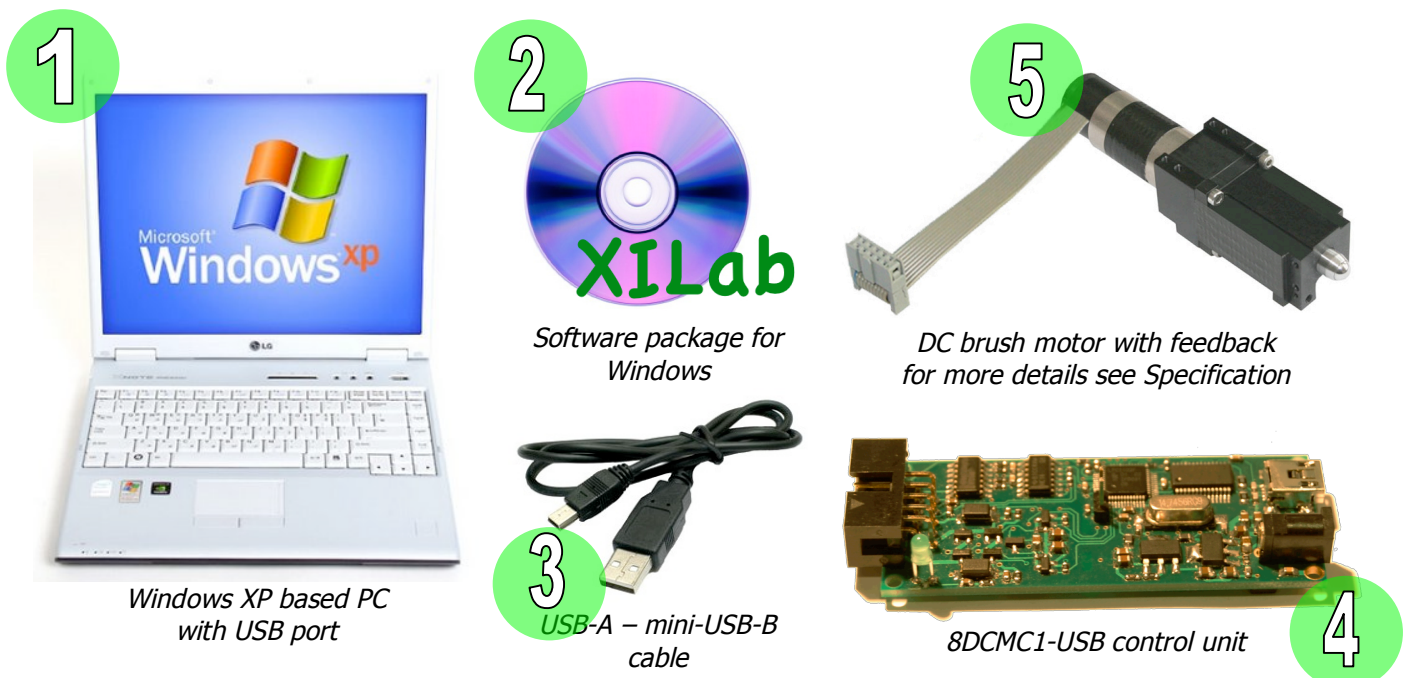


Figure 1. System requirements

1. Makes sure that your Windows XP has latest updates and service packs. It help keep Windows XP current, extend and update the functionality of your PC. Install it from www.microsoft.com/updates if it necessary.
2. Insert the CD-ROM with 8DCMC1-USB software package in CD-ROM drive or download the latest software from www.standa.lt, unzip it and open main folder.
3. Check USB-A – mini-USB-B cable. Use well-known operable USB cables only! Defective USB cables may cause the 8DCMC1-USB to malfunction.
4. Depends on delivery set appearance of 8DCMC1-USB control unit can be different. See on Figure 1 illustration 4 8DCMC1-USB control unit without aluminium case.
5. DC brush motor with feedback meets Table 1 requirements can be used with 8DCMC1-USB control unit. More powerful motors will be limited by control unit to these values, torque and max. speed will be reduced conformably. If you intend to use your own cables for connecting 8DCMC1-USB control unit to motorized stage, please check motor and feedback wiring according Figure 3. Additionally two limit switches can be used: Limit switch 1 and Limit switch 2. These contacts are used for determination of limits in translational stages. It can be set up as normally opened or closed contact, enabled or disabled by software.
6. Use 12V stabilized DC power supply (see Figure 1 illustration 6) with 6-12V DC motors always. Use it with 5V DC motors too if USB hub has no enough current. Power supply rated current must be 500-1000 mA. Power supply voltage must never exceed 14V. 8DCMC1-USB control unit can be damaged if higher voltage is applied. Check power supply connector. It must be DJK10D type with 1.3 mm positive central pin as shown on Figure 4.



Figure 2. 12V stabilized DC power supply

Data	Power supply type	
	USB	External 12V
Motor		
Nominal voltage	2 - 5 V	3 - 12 V
Maximum power	2.5 W	6 W
Nominal current	10 - 500 mA	
Encoder feedback		
Type	Quadrature encoder	
Outputs	Channel A, channel B TTL type	
Supply voltage	5V	
Bandwidth	200 kHz	
Potentiometer feedback		
Type	3-wire potentiometer	
Resistance	1 - 10 kOhm	

Table 1. Motor and feedback requirements

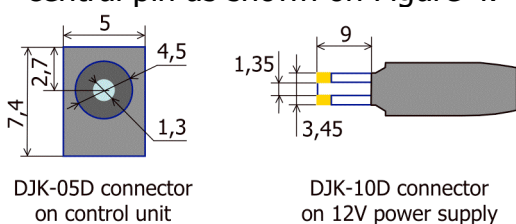


Figure 4. 12V power supply connector

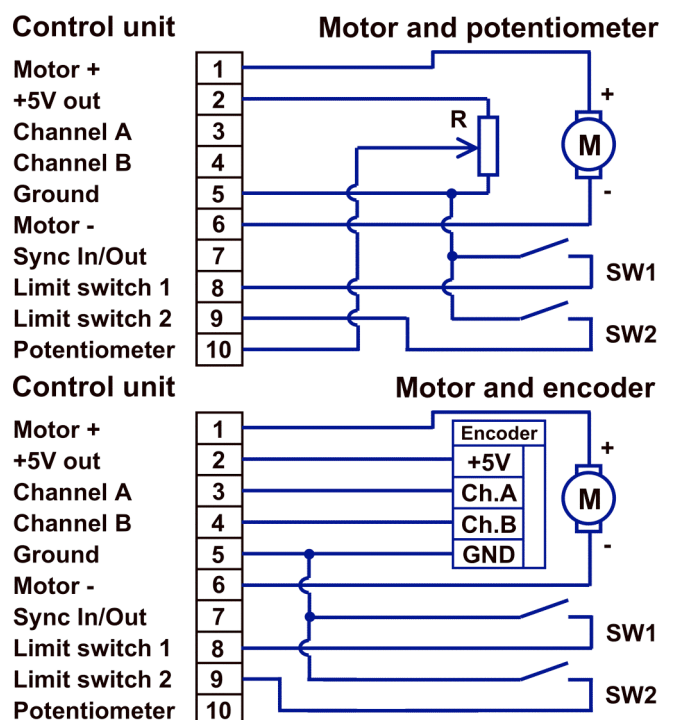


Figure 3. Motor and feedback wiring

Note: 8DCMC1-USB control unit with metal case requires case ground. 8DCMC1-USB without case is grounded via USB cable. Makes sure that operating 8DCMC1-USB board without case is lying on non-conducting surface and there are no foreign debris on the 8DCMC1-USB circuit board and near it.

3 Installation, connection and first start

Makes sure that all 8DCMC1-USB units are disconnected from PC.

Open 8DCMC1-USB software package main folder, find XILab\Windows\XILab 0.0.2.2\ and click on XILab-0.0.2.2 setup.exe. Next screen will be shown (see Figure 5). Press "Next>" button and follow the instructions on screen. When screen on Figure 7 will appear press "Yes" and follow the instructions till the screen that shown on Figure 6. XILab installation and driver installation complete!

Connect DC brush motor with feedback to 8DCMC1-USB control unit (see units on Figure 1). Connect 12V stabilized DC power supply to 8DCMC1-USB (optional). Connect 8DCMC1-USB to PC using USB-A – mini-USB-B cable.



Figure 5. XILab 1st installation screen

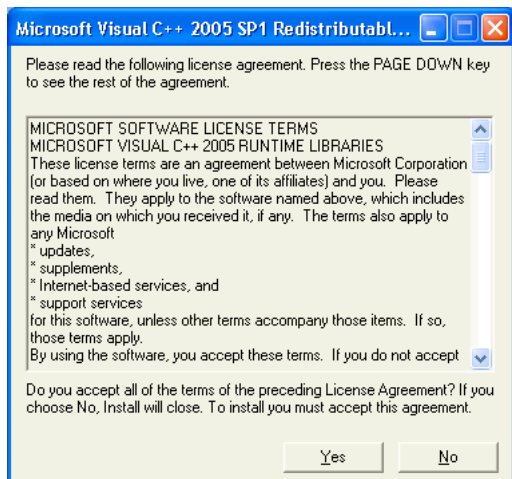


Figure 7. Runtime libraries installation

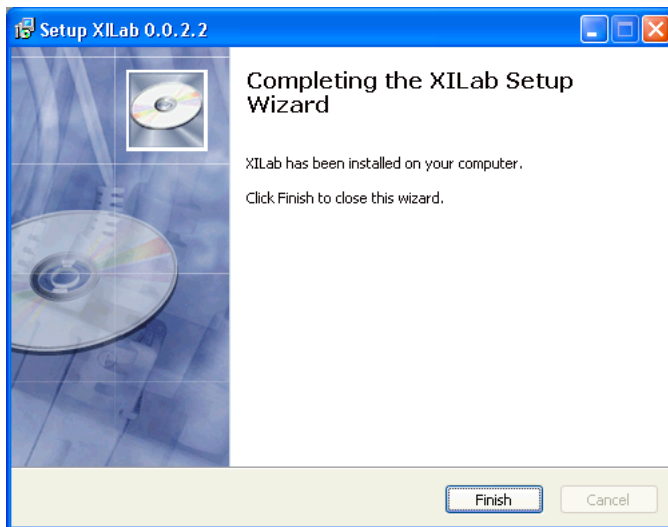


Figure 6. XILab installation last screen

Status LED on XIDC unit (see Figure 8) will blink fast. New Hardware Wizard will start after first connection of 8DCMC1-USB unit to PC. Wait while Windows find new hardware and install driver for it. Depending on a Windows version it may pass automatically or demand to pass next steps.

If screen like Figure 9 appear choose "No, not this time", press "Next>". On the next screen choose "Install from a list or specific location (Advanced)" and press "Next>". Then choose \Driver\Windows\CDM 2.04.16 WHQL Certified folder, press "Next>" and wait until installation will be completed. When driver found status LED (see Figure 8) will blink slowly.

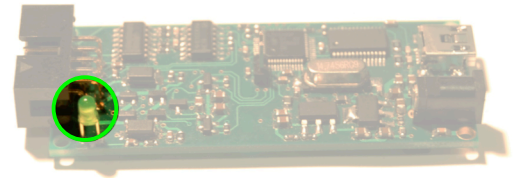


Figure 8. Status LED on control unit board

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

Connect 8DCMC1-USB unit to PC. Click "Start", choose Programs->XIMC->XILab->XILab. After start screen like the one on Figure 10 will appear.



Figure 9. Hardware wizard 1st screen

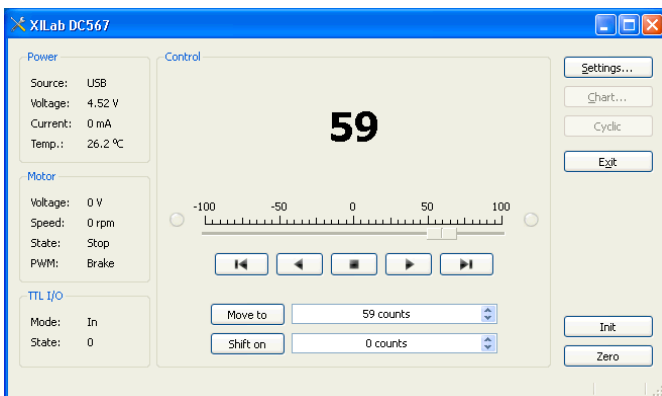


Figure 10. XILab main screen

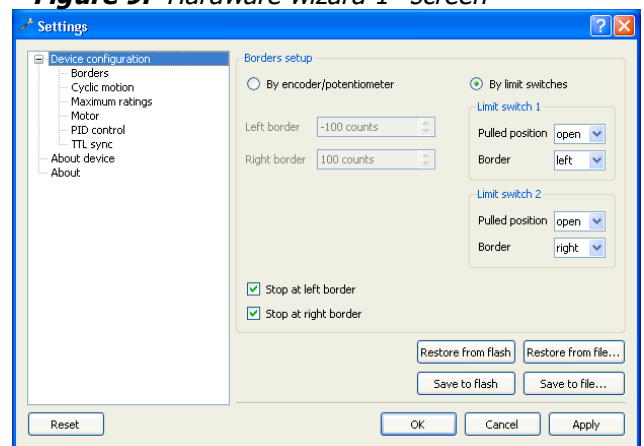


Figure 11. Settings

Open "Settings..." click on "Restore from file..." button (see Figure 11) and choose your stage from Profile \Profile folder. All fields of "Settings..." will be filled with specific for your positioner values.

4 Quick start guide updates history

Date	Supported units s/n	Supported firmware	Supported GUI	Supported OS	Remarks
8/19/2009	DC100 – DC299	xidcusb1239.cod	XILab 0.0.2.2	Windows XP	1 st rev. of Quick start guide