

USB controllers model lineup



USB Board
Circuit Card Wiring Diagram



B8-1
One Axis Controller



B9-2
Two Axis Controller



B8-B9
Three Axis Controller



B9-B9
Four Axis Controller

Brief description

An overview of today's approaches for flexible motion control in lab experiments is given. With modern controller design even simple and inexpensive positioners can be utilized to achieve high speed and precision. It doesn't matter which motor technology you prefer: stepper or DC because one controller can drive them all. Multi-axis control, developing custom motion control software for any OS, automatic positioners recognition and using various peripherals are all easy now.

Supported types of motors

One controller, one interface for any type of motor!

- **Bipolar Stepper (rotational/linear)**
- **DC**
- **BLDC (rotational/linear)** (is available from 2017)

The controller is great at driving bipolar stepper motors with a rated winding current of up to 3 A and DC motors with rated current up to 6 A. All you need to do is plug it in, no assembly required.

Multiple controllers can be connected to one computer either via USB ports or through a special hub that provide axis synchronization.

The controller's software is fully compatible with almost all operating systems, e.g., Windows, Mac OS X, Linux, etc. You can test the software with virtual controllers simulated by the software. The software provides javascript like scripting language to quickly automate your task or you can use a cross platform library with code examples on C, Visual Basic, Matlab, Labview, C# to build your own software.

Optionally the controller can be managed with the same instructions set, as from USB interface, by using many of popular serial interfaces like Bluetooth, Ethernet, RS422 or RS232 – requires converters from TTL logic signals RX and TX. These signals are located on the backplane connector of the controller circuit board. Communication speed, parity and stop bits are wide configurable. Default interface is USB, but on request Standa can produce controllers with required interface. Test the controller 8SMC5 instantly as it comes with the manual control buttons, they could be used for ease testing of your equipment or controller itself even without a PC.

For faster starting your task we continuously develop new [configuration files](#) for motorized stages.

Software

XiLab features two user-friendly graphical interfaces, which are designed for positioners control, diagnostic and fine tuning of the motors driven by the controllers.

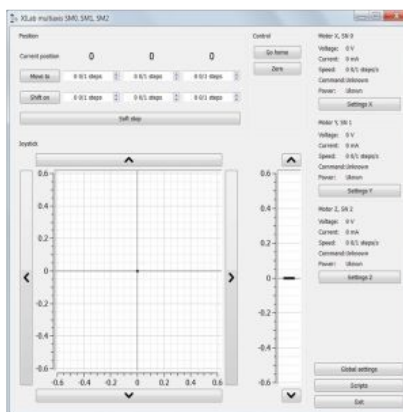
The control process can be automated with the scripting option that can be used either directly or to speed up the process of customized control program development. XiLab supports multiaxial mode and multidimensional control scripts. It is possible to output motor and controller status in form of charts and save them to a file. XiLab software has two types of interfaces: Single-axis control and Multi-axis control.

New software extension for integration with Tango environment is available. Please inquire for details.

Single-axis and Multi-axis control interfaces contain motor and controller parameters: position, speed, voltage, current and temperature. Advanced joystick and units conversion block are only available in Multi-axis interface. You can choose any of these interfaces that fits your application the best.



XiLab Main window in single-axis control mode



XiLab Main window in multi-axis control mode

Specifications

Number of axes	1 to 4 (32 axes in single USB port)
Motor parameters	
Motor type	stepper/dc/servo
Current	
Stepper motor	0,1- 3 A
DC, servo	0,1- 6 A
Voltage	2-48 Vdc
Motor kinematics	
Step division (for stepper motor)	1-1/256
Maximum speed	
Stepper motor	35000 steps/s
DC, servo	800000 counts/s
Motion control	
Motion modes	move left/right, move to point, shift on delta, continuous speed, acceleration and deceleration ramps, backlash compensation mode, automatic home position calibration mode, linear interpolation, circular interpolation and etc.
Control loop	Open loop, closed loop
Compensation	
Backlash compensation	Included
Step loss compensation	Included
Positioner sensors reading	
Encoder (rotary)	Incremental quadrature encoder (TTL, RS422 up to 5MHz)
Limit switches	optron, hall sensor, microswitch
Revolution sensor	supported
Communication interface	Ethernet, USB, RS232
I/O	
Synchronization	I/O included
Joystick	Analog input (0-3V)
Output	+3V; +5V for power supplying
Motor connector	DB15F
Supplementary connector	DB25F
Position counter	40 bit
Positioner identification	One-wire interface (for Standa and other suppliers)
Protections	ESD protection, Current overload protection, Voltage overload protection, Short circuit protection, Motor hot plug/unplug protection
Operating temperature	Up to 70 degrees C
LED indication	Included
Programming	C++, C#, .NET, Delphi, Visual Basic, gcc, Xcode, Matlab, Java, LabVIEW.
SCADA Support	µmanager, FESA, TANGO, EPICS (by request)
Supported OS	Windows XP/Vista/7/8/10,10.1, Linux, Mac OS