How does NumericPad Work

NumericPad provides up to 12 distinct digits of input to your host controller; 0-9, #, and *.

The NumericPad is continuously reading for key presses. Whenever you need, your program can read from the sensor and receive the key that is currently pressed.

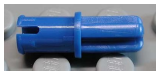
Connections and Placement

NumericPad can be connected to any of the four sensor ports of NXT by using standard cables from NXT set, or FlexiCable from mindsensors.com.

Mounting NumericPad on your contraption

The holes on the NumericPad enclosure are designed for tight fit of Technic pins (or axles) with '✚' cross section. The holes however are not designed for repeated insertions/removals of these pins.

To mount NumericPad on your contraption we suggest that you use two dark gray 'Technic Axle 3 with Stud' as shown.
Insert axles from the top of the NumericPad and secure with a bushing on the back or mount it on your contraption directly.
Alternately, you may use blue 'Technic Axle Pin with Friction', as shown.



While disassembling contraption, leave the pins on NumericPad.

Programming Techniques

EV3:

To use capabilities of the sensor, please download EV3 blocks available at following URL:
http://www.mindsensors.com/index.php?controller=attachment&id_attachment=198

Installation instructions for EV3 block are available at:
http://www.mindsensors.com/content/13-how-to-install-blocks-in-ev3

Download EV3 sample program from following URL and modify it to suit your needs.

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=197

NXT-G:
Download the NXT-G blocks available in the NXT-G Blocks Repository at Mindsensor's website, at following location:
http://www.mindsensors.com/index.php?controller=attachment&id_attachment=107

Installation instructions for NXT block are available at:
http://www.mindsensors.com/content/21-nxt-g-blocks-how-to-install-blocks

Also download sample programs from following location, and modify to suit your needs.
http://www.mindsensors.com/index.php?controller=attachment&id_attachment=108

⚠ **NOTE:** Ensure to use latest firmware on your NXT.

RobotC:

The driver implementation is available in Xander's driver suite at following url:

https://github.com/botbench/robotcdriversuite

the header file for the driver is: mindsensors-numericpad.h

NXC:
Download the sample programs and library file available at following location, and include the library file it in your program by #include directive as:

#include "NP-lib.nxc"

Alternately, you can modify the sample programs to suite your needs.

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=109

I2C Registers:

The NumericPad appears as a set of registers as follows:

Register	Read	Write
0x00	Each bit represents a key (Byte)	None
0x01	The first four bits represent keys	None

Register	Bit #	Key
0x00	Bit 0	#
0x00	Bit 1	9
0x00	Bit 2	6
0x00	Bit 3	3
0x00	Bit 4	0
0x00	Bit 5	8
0x00	Bit 6	2
0x00	Bit 7	5
0x01	Bit 0	*
0x01	Bit 1	7
0x01	Bit 2	1
0x01	Bit 3	4

Current Consumption

Average measured current consumption of this device is: **1 mA**

I2C Bus address

Factory Default Address: 0xB4.

This I2C address can not be changed.

Adding your own Overlay for Keys

For your creative application if you require keys different than the ones that are printed on the NumericPad, you can add your own overlays. Download Overlay templates, and instructions from following url: http://www.mindsensors.com/pdfs/How-To-Use-NumericPad-Overlay-Templates.pdf