

What is PSP-NX

PSP-NX is a digital interface to SONY® playstation 2 controller with NXT. When used with wireless controller, it acts as programmable remote control for NXT. The controller has two analog joysticks and 16 buttons. Using PSP-NX interface, values of all 16 buttons and 2 joysticks can be read by the NXT over the wireless link. Following sections provide operation commands and output format.

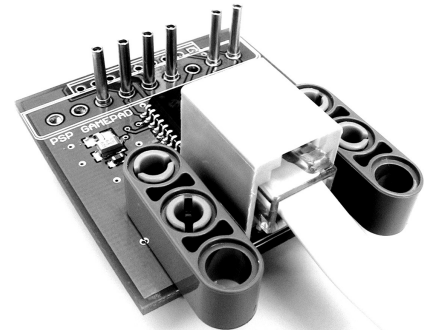
PSP-NX Feature List

- Uses NXT compatible I2C protocol for communications.
- Detects press of any of 16 buttons.
- Returns the X and Y position data for the two analog joysticks.
- Capable of selecting controller mode (Analog or Digital) from NXT.
- Supports **Auto Detecting Parallel Architecture (ADPA)** for digital sensors. This means that PSP-NX can coexist with a LEGO or third party digital sensor on the same NXT port. ADPA enables user to employ several sensors on the same port without the need of external sensor multiplexer thus reducing the overall size of robot.

Connections

Using a cable, connect the PSP-NX to any one of the four ports of NXT.

Please refer the section below on how to mount Play station-2 controller receiver on PSP-NX interface.



I2C Operations

Pins used: SDA(1), GND(2), SCL(3), +5V(4)

Following table lists the commands for heading calculations, calibration and setup:

Commands		Action
ASCII	Hex	
E	0x45	Energized (power on)
D	0x44	De-energized (power off)
A	0x41	Digital mode

s	0x73	Set Analog mode
N	0x4E	Set ADPA mode On
O	0x4F	Set ADPA mode Off (default)

I2C Registers:

Register	Read	Write
0x00-0x07	Software version - <i>V2.00</i>	-
0x08-0x0f	Vendor Id - <i>mndsnsrs</i>	-
0x10-0x17	Device ID - <i>PSPNX</i>	-
0x40	-	-
0x41	Mode	Command
0x42	Button 1	-
0x43	Button 2	-
0x44	X-Left joystick	-
0x45	Y-Left joystick	-
0x46	X-Right joystick	-
0x47	Y-Right joystick	-

Current Consumption

Average measured current profile is as follows:

Operation	Current Consumption	Duration
PSP Receiver ON	12mA	Continuous
PSP Receiver OFF	2mA	Continuous

I2C Bus address

Factory Default Address: 0x02

Changing the I2C Bus Address:

PSP-NX uses configurable I2C bus address. If you would like the set different address than what is shipped, then sequence of 0xA0, 0xAA, 0xA5, <new I2C address> needs to be written on the command register without any brake (read operation). New address is effective immediately.

Please note down your address carefully on the device for future reference

You can download address change and scan functions from website www.mindsensors.com written in RobotC.

Programming Techniques for reading in I2C mode

NXT-G Method:

You can use the factory shipped PSP-NX with Lego Ultrasonic sensor block. In this mode you can use the sensor with limited capabilities. To enable advanced capability please use custom NXT block.

RobotC Method:

You can use example program in C and robotC compiler to use PSP-NX on your NXT robot.

NBC Method:

You can use example program in NBC and NBC compiler to use PSP-NX on your NXT robot.

Mounting Play station 2 receiver on PSP-NX

You can insert the Play station 2 wireless controller receiver in the pins on PSP-NX interface. Please make sure that while inserting the receiver in the Pins, it is consistent with the white markings on the Interface board.



NOTE

A blinking LED on PSP-Nx (at the rate of once per second) indicates that the receiver is not connected correctly to PSP-Nx. When connected properly this blinking should stop.

