

What is MTRMX-Nx

MTRMX-Nx is a legacy motor port expander for NXT. You can use it to attach up to 4 RCX motors to your NXT robot.

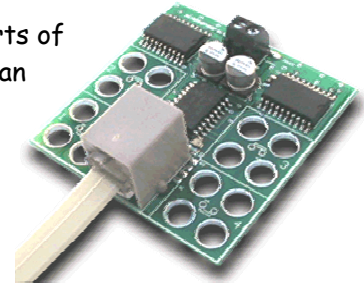
Following sections provide operation commands and register summary.

MTRMX-Nx Feature List

- Uses NXT compatible I2C protocol for communications.
- Drives four Lego motors with 255 speed steps and brake, float, forward and reverse options
- Is able to apply variable braking power.
- Able to drive any motor rated up to 35V/1A.
- Reverse polarity protection on motor supply side.

Connections

Connect MTRMX-Nx to any of the sensor ports of NXT by using standard NXT cable. Motors can be connected to MTRMX-Nx using standard legacy Lego cable.



I2C Registers:

The MTRMX-Nx appears as a set of 10 registers.

| Register | Read | Write |
|-----------|---------------------------------|-------------------|
| 0x00-0x07 | Software version - <i>V1.10</i> | - |
| 0x08-0x0f | Vendor Id - <i>mndsnsrs</i> | - |
| 0x10-0x17 | Device ID - <i>MTRMUX</i> | - |
| | | |
| 0x41 | - | Command |
| 0x42 | Direction Motor 1 | Direction Motor 1 |
| 0x43 | Speed Motor 1 | Speed Motor 1 |
| 0x44 | Direction Motor 2 | Direction Motor 2 |
| 0x45 | Speed Motor 2 | Speed Motor 2 |
| 0x46 | Direction Motor 3 | Direction Motor 3 |
| 0x47 | Speed Motor 3 | Speed Motor 3 |
| 0x48 | Direction Motor 4 | Direction Motor 4 |
| 0x49 | Speed Motor 4 | Speed Motor 4 |

Motor speed can vary from 0 to 255. Direction register contains information about direction.

Following list provides possible values for commands in command register:

| Value | Command |
|-------|---------|
| x00 | Float |
| 0x01 | Forward |
| 0x02 | Reverse |
| 0x03 | Brake |

When sending the brake command to the motor, the speed register specifies the braking power (value ranges from 0 to 255, 0 indicating no braking, 255 indicating highest braking).

I2C Bus address

Factory Default Address: 0xB4

Changing the I2C Bus Address:

MTRMX-Nx is shipped with a factory default I2C bus address. Should you need to configure it then write following sequence on the command register without any break or read operation:

0xA0, 0xAA, 0xA5, <new I2C address>

New address becomes effective immediately. Please note down your new address of the device for future reference.

You can download the address change and scan functions from our website at www.mindsensors.com. These functions are written in RobotC.

Programming Techniques

NXT-G Method:

Download the block from Mindsensors' website.

RobotC Method:

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

NBC Method:

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



