

# KMTronic DINO

## Internet controlled relay board



Arduino compatible, fully assembled and tested. Complete Internet/Ethernet board with 4 Optically-Isolated Digital Inputs and 4 Relays.

Arduino is an open-source physical computing platform based on a simple i/o board and a user friendly development environment that implements the Processing/Wiring language.

### Features

- ATMEGA328 Microcontroller
- ENC28J60 Ethernet Controller
- Built-in USB FTDI USB to Serial COM port converter
- Built-in RS-485 converter
- 4 Opto Isolated Digital Inputs
- 4 Relays 220VAC/10Am
- Reset Button
- Code upload via USB with the Bootloader

**Specifications :**

- Microcontroller: ATmega328
- Power Voltage: 12VDC
- Input Voltage: 5-24VDC
- Ethernet Controller: ENC28J60
- Digital Input Pins: 4
- Relays: 4
- Flash Memory: 32 KB (ATmega328) of which 2 KB used by bootloader
- SRAM: 2 KB (ATmega328)
- EEPROM: 1 KB (ATmega328)
- Clock Speed: 16 MHz

Relays has Normally Open (NO) and Normally Closed (NC) Contacts rated for voltages:

- 12VDC/15A
- 24VDC/15A
- 125VAC/15A
- 250VAC/10A

**Relay's datasheet:**

(relays used : RAS-1215 - 1C)

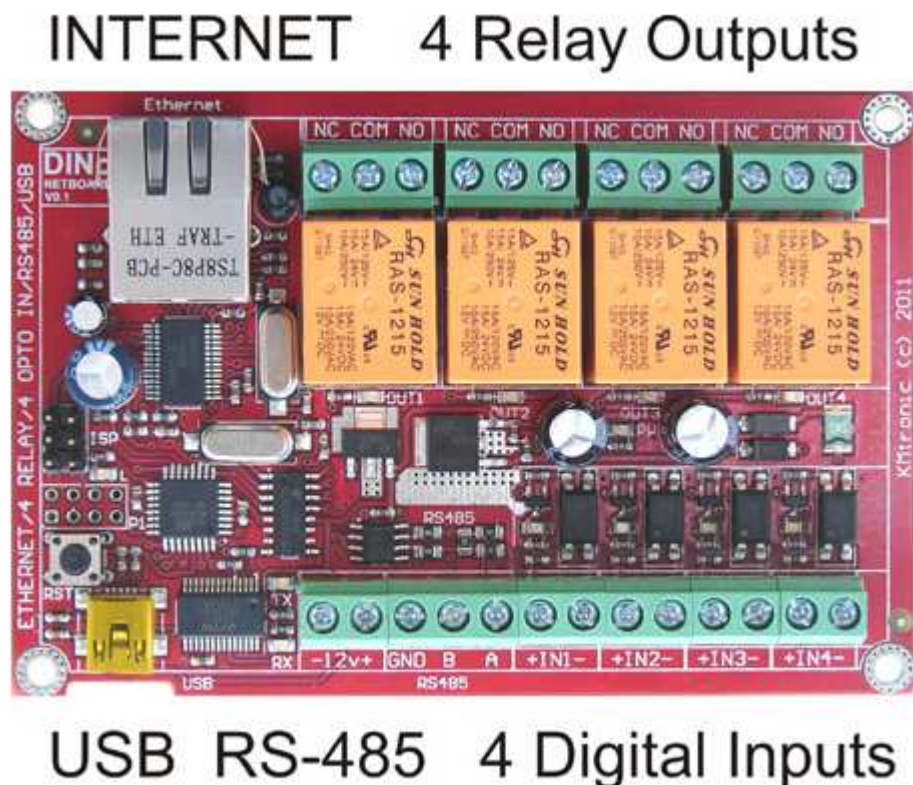
<http://www.sigma-shop.com/information/Relay/RAS.pdf>

**Dimensions:**

108 mm / 72 mm / 20 mm

**Supply:**

12 Volts DC / min 500mA



## DINO NETSTARTER Pinout definition:

### Relays:

Relay1 - Digital Pin 8

Relay2 - Digital Pin 7

Relay3 - Digital Pin 6

Relay4 - Digital Pin 5

### Inputs:

Input 1 - Analog Pin 5

Input 2 - Analog Pin 4

Input 3 - Analog Pin 3

Input 4 - Analog Pin 2

### RS485 communication:

TX/RX control - Digital Pin 3

RX - Digital Pin 0

TX - Digital Pin 1

### ENC28J60:

Connection on SPI port

ENC28J60\_CONTROL\_CS - Digital Pin 10

SPI\_MOSI - Digital Pin 11

SPI\_MISO - Digital Pin 12

SPI\_SCK - Digital Pin 13

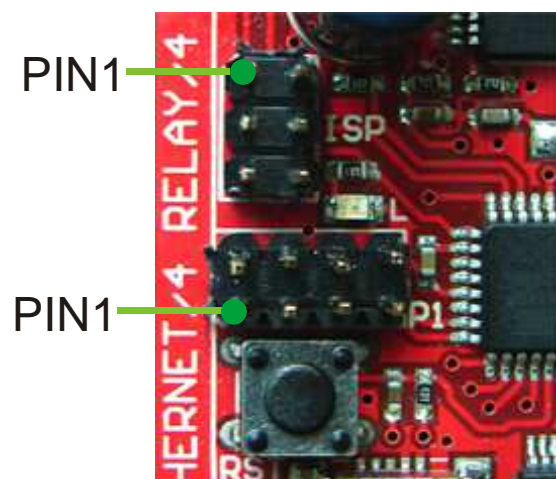
### Additional Connectors:

ISP - ICSP header

MISO	1	○	○	2	VCC
SCK	3	○	○	4	MOSI
RESET	5	○	○	6	GND

P1 header

VCC	1	○	○	2	3.3V
GND	3	○	○	4	D2
D0/RX	5	○	○	6	D1/TX
A1	7	○	○	8	A0

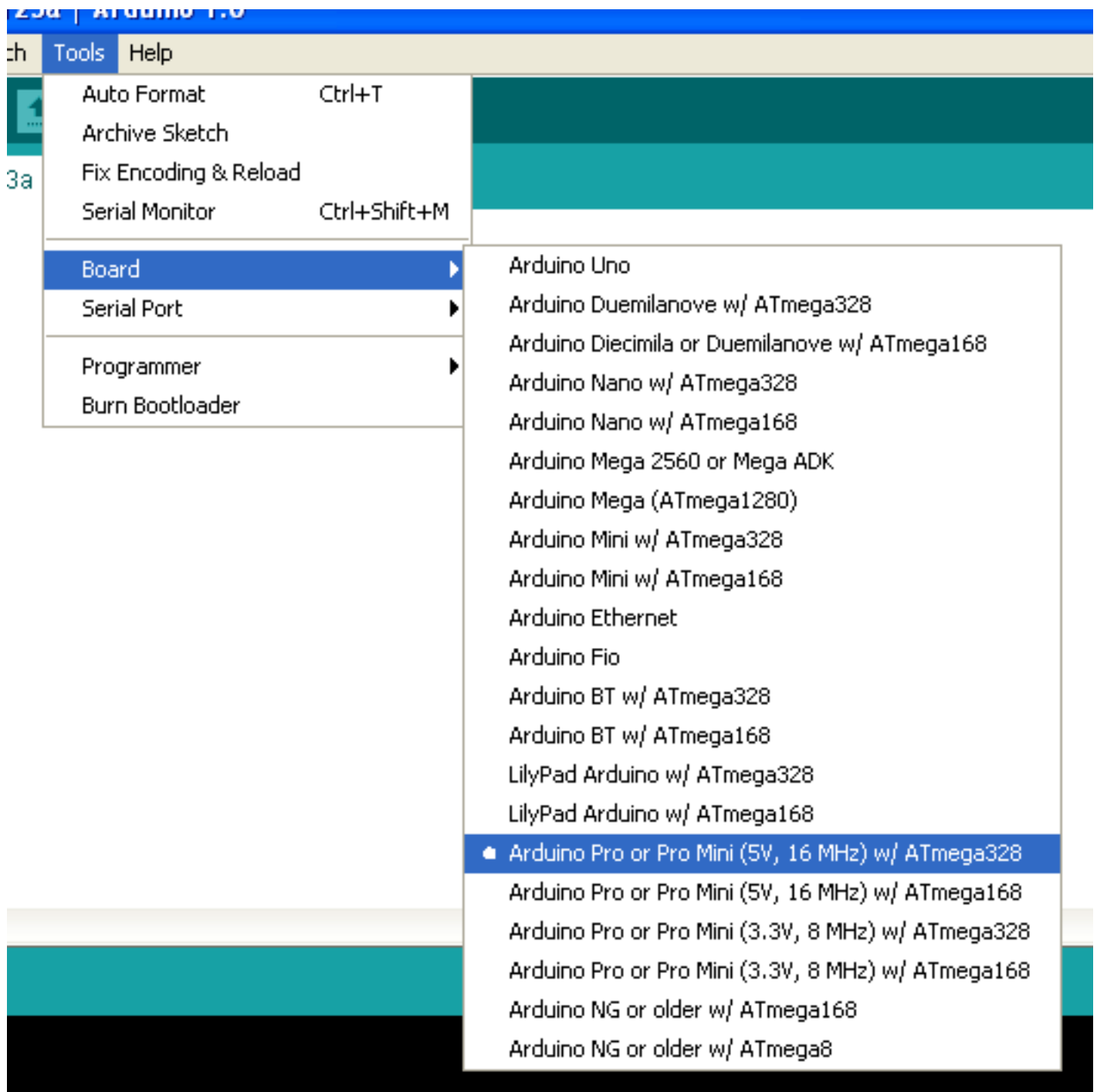


## Arduino instalation and setup

Download the Arduino Software from  
<http://arduino.cc/hu/Main/Software>

Unzip it to your own folder.

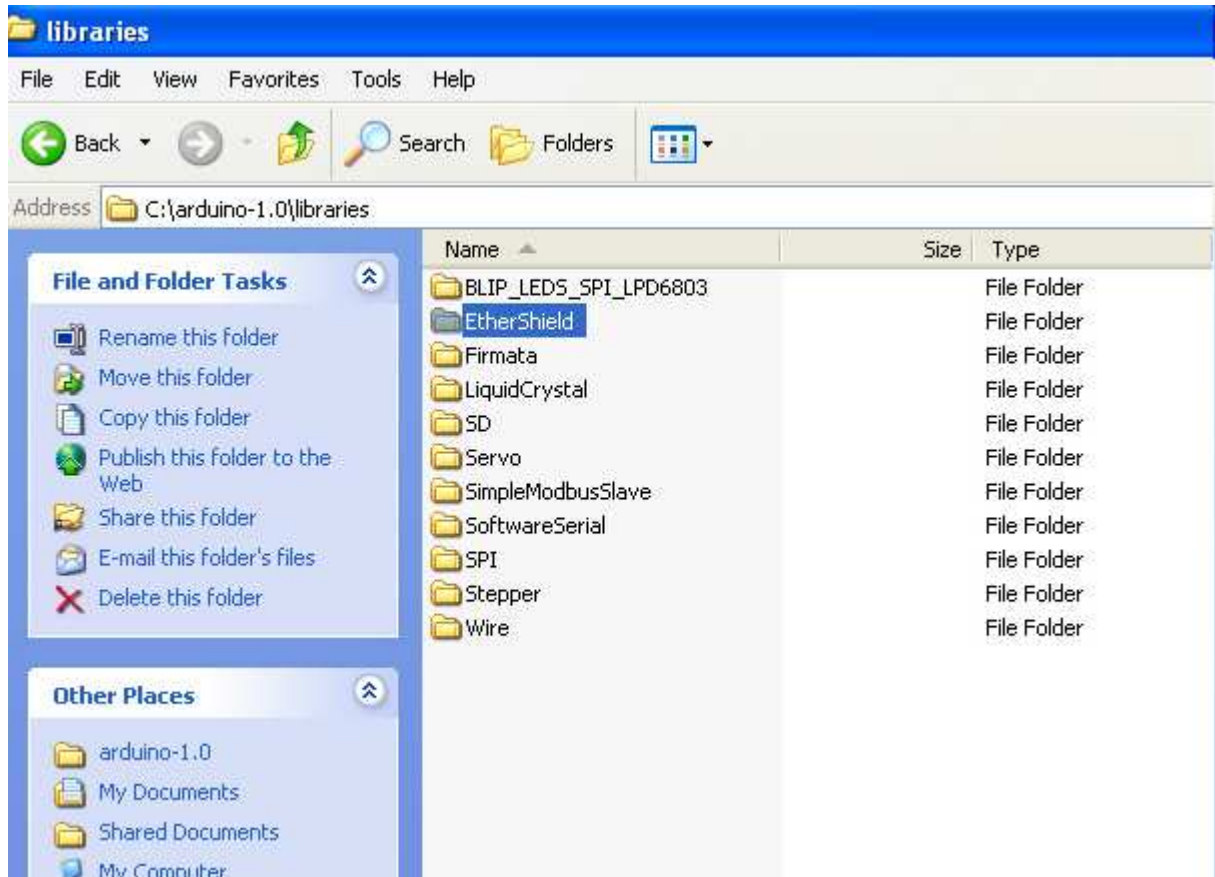
Run **arduino.exe**, go to Tools>Board and check Arduino Pro ..w/ ATmega328



## Internet library instalation

Download and unzip in your Arduino libraries folder "ENC28J60 EtherShield Library"s

[http://www.kmtronic.com/software/DINo/EtherShield\\_Arduino\\_v1.zip](http://www.kmtronic.com/software/DINo/EtherShield_Arduino_v1.zip)



## Software examples:

<http://kmtronic.com/arduino-projects.html>