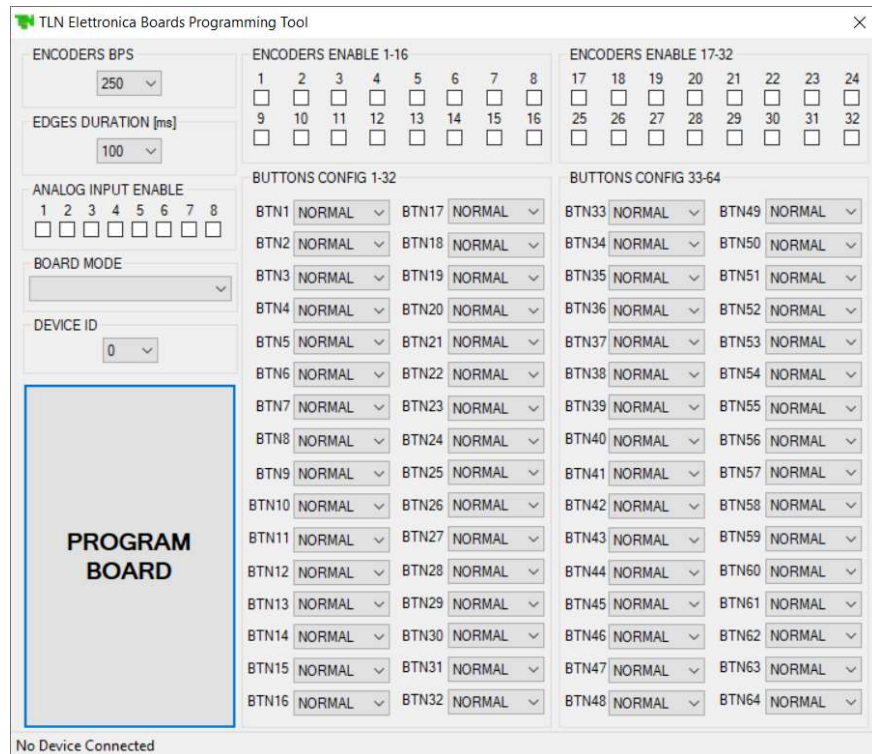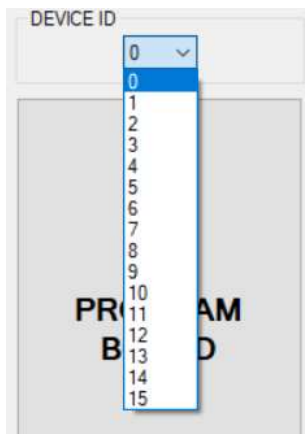# - BOARDS PROGRAMMING TOOL

This tool is used to configure TLN Elettronica Plug&Play USB boards tipe:

- 8AI-36DI-MTX
- 8AI-36DI
- 8AI-36DI-CONN
- 32DI
- 64DI

Using this tool, the following parameters can be set:

- DEVICE ID
- BOARD MODE
- ANALOG INPUT ENABLE
- BUTTONS CONFIGURATION
- EDGE DURATION
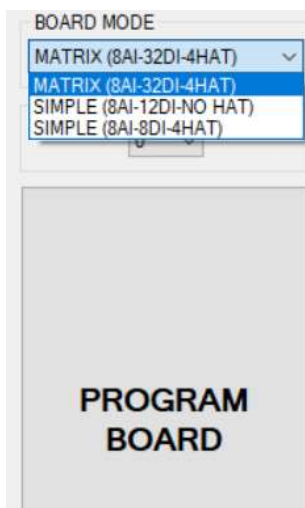- ENCODER BPS

- DEVICE ID

When two or more boards of the same tipe are connected to the PC, it is necessary to configure an univocal ID to each board.

In this way the user, and the PC too, is able to recognize correctly the board without making mistake.

Each board ID can be configured from 00 to 15, so it's possible to connect up to 16 boards of the same type at the same time.
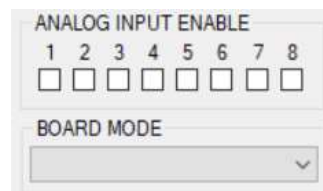
- BOARD MODE

Some boards ("MTX" family for example) have two or more operating mode available, so it's necessary to select the one needed.

For esample, the board in the image beside is the "8AI-36DI-MTX" and it can be used as "MATRIX" to be able to connect up to 32 buttons, or it can be used as "SIMPLE" with or without HAT switch.

You can find more details about the board inside its own instruction.

- ANALOG INPUT ENABLE

To be able to use analog inputs, it's necessary to enable ONLY the used input by checking the checkboxes.

- BUTTONS CONFIGURATION

Each digital input can be configured in five different way.

- o NORMAL
- o OFF to ON
- o ON to OFF
- o BOTH
- o ENCODER

Input set as "NORMAL", the command sent to the PC matches exactly the state of the button/switch.

Input set as "OFF to ON", the board sends a pulse to the PC with limited duration that fires when the button/switch toggle from OFF state to ON state.
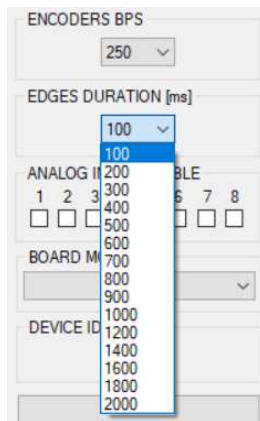
Input set as "ON to OFF" the board sends a pulse to the PC with limited duration that fires when the button/switch toggle from ON state to OFF state.

Input set as "BOTH" the board sends a pulse to the PC with limited duration that fires when the button/switch toggle from any state to another.

Each couple of input can be set as one ROTARY ENCODER by enabling the "ENCODERS ENABLE" checkbox.

When a rotary encoder is enabled, the settings for the relative inputs are hidden (For example, as shown in the image above, Encoder 5 enabled, BTN9 and BTN10 inputs are hidden).
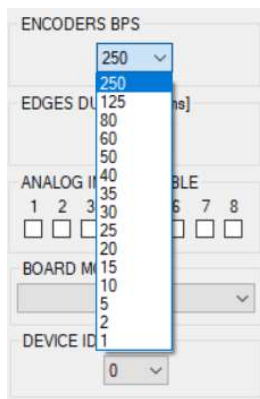
- EDGES DURATION

This parameter is the duration of the pulse generated by any input configured as pulse ("OFF to ON", "ON to OFF", or "BOTH").

The pulse duration spans from 100ms (1/10 second) to 2000ms (2 seconds).
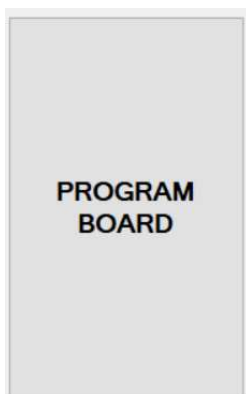
- ENCODERS BPS

When rotary encoders are used, it's necessary to set the number of pulses per second that the board have to send to the PC/Simulator to let the PC/Simulator has the time to process them.

The encoder's beat per second (BPS) spans from 1 BPS to 250 BPS.
Usually 30 to 60 BPS are used.

- PROGRAM BOARD

Once the user is ready, it's necessary to program the board using the dedicated button "PROGRAM BOARD", in this way the configuration is sent to the board and memorized.

Wait for the popup window and press OK.

If the DEVICE ID has been modified, it's necessary to disconnect and reconnect the board from the USB to finish the programming process.