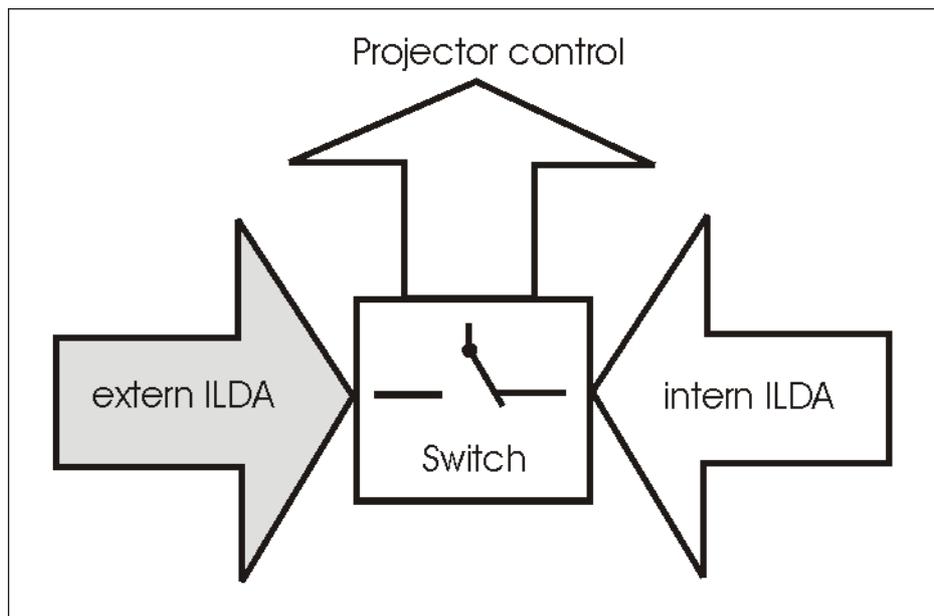


ILDA Switch

Automatic switching board for ILDA signals

Users manual

(Please read before setting up)



Last modified November 2nd' 2009

Published by:

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1 Basic description

Technical data

- one external ILDA input for symmetrical (differential) signals
- one internal ILDA input (Intensity and colour signals single ended)
- external scanner signals electrical isolated from the board circuit
- converts external intensity and colour signals to single ended signals
- uses external shutter signal for signal source selection
- additional manual signal source selection possible
- operates from single 5V supply (500mA max)
- small board size 76 x 56 mm allows easy installation in laser projectors

The automatic switching board is designed to be installed inside a laser projector and allows to switch the control signals for the projector between an external ILDA-connector and an internal controller, like a showplayer or a network card, like NetLase.

The board can switch scanner signals, intensity signal, up to 6 colours and the shutter signal. Unused colour signals can be left unconnected (inputs and outputs).

Two signal sources can be connected to the board:

- external ILDA input (symmetrical or differential signals)
- internal ILDA input (Intensity and colour signals single ended)

The connectors are designed as flat cable connectors and are compatible with the standard ILDA-pinout, if a 25pin male DSUB-connector for flat cable is mounted at the other end of the flat cable.

The board switches automatically by the use of an external shutter signal. The signals can also be switched manually by closing 2 pins on the board.

Important note

All pins for negative control signals (-) of the 'internal' ILDA-input are connected to GND. Be sure that your controller allows to connect these signals to GND.

Otherwise, do NOT connect these signals and leave them unconnected!

Because of the short distance from internal controller (player, network card) to scanners or lasers inside the projector, it is not necessary to use symmetrical signals.

2 Power supply

The board must be powered by a single 5V DC powersupply.

The powersupply must be stabilized and must deliver at least 500mA of current.

Caution:

Supply voltage above +5V or reverse-connection of the power will damage the board!

3 Operating conditions and responsibility

This product is not an electrical device ready to use.

It is a component, which requires additional components and installation and to run as a complete electrical apparatus. This product will form an apparatus, when installed in a housing, connected to a powersupply, and when all signals are connected.

For this reason, this product does not have to comply with the regulations of WEEE.

The product is designed and produced to meet CE regulations and all parts are RoHS conformal.

It is recommended to read this instruction manual completely before starting working with the product.

Warranty can be void due to mishandling.

The manufacturer excludes liability in case of any damages, which are result of mishandling or operation under unspecified conditions.

Also any liability claims regarding damage caused by the use of this product will be rejected.

The product should only be used under dry condition and 0°C to 40°C roomtemperature.

Assembly and setting up must be done by qualified persons only.

The manufacturer excludes liability in case of the following damages, unless it is verifiable that damage existed when the product left factory.

- Wrong polarity of power supply voltages
- Supplyvoltage too high or unstabilized
- Output drivers overloaded or short connected.
- Damage as a result using the product beyond recommended operation conditions.
- Damage caused by electronic or mechanical manipulations
- Damage caused by dust and corrosion

4 Signal inputs

4.1 External ILDA input signals

The following table shows the external ILDA signals and the routing of these signals:

Scanner signals X+, X-, Y+, Y-	routed 1:1 to the output connectors by relais Scanner signals are isolated from the circuit of the switching board!
Intensity+ and Intensity-	converted to single ended signals and routed to output via relais. Output signal operates against GND of the switching board!
Colour signals + and -	converted to single ended signals and routed to outputs via electronical switches. Output signals operate against GND of the switching board!
Interlock signals A and B	routed unmodified and isolated from the circuit to 2 connector pins.
Shutter signal	used for selection of the signal source external / internal and is also switched to the shutter output if external ILDA input is selected.
GND (Pin 25)	is connected to circuit ground GND.

4.2 Internal ILDA input signals

The following table shows the internal ILDA signals and the routing of these signals:

Scanner signals X+, X-, Y+, Y-	routed 1:1 to the output connectors by relais Scanner signals are isolated from the circuit of the switching board!
Intensity and colour signals (single ended)	routed to outputs via electronical switches. Output signals operate against GND of the switching board!
Interlock signals A and B	Interlock signals are not used from internal source
Shutter signal	routed to the shutter output if internal source is selected.
GND (Pin 25)	is connected to circuit ground GND.

5 Signal selection

The signal source (external or internal ILDA input signal) is selected by the external shutter signal. If the external shutter signal is +5V, the external ILDA signals are switched to the outputs. This allows the projector to be controlled by external ILDA signals. If the external ILDA cable is disconnected from the projector or an external controller (DAC card) removes the shutter signal, the switch falls back to internal ILDA signals (default mode). The switch can also be set to 'external ILDA signals' by closing 2 pins (intern/extern control) on the board directly. This can be necessary if the external controller device does not support a shutter signal.

Note that the external shutter signal and the manual selection are logical **OR**ed. The internal shutter signal is not used to control the board. So the state of the internal shutter source does not affect the state of the switch. In default mode (if no external shutter signal is applied **and** the manual control pins are open), the internal ILDA connector is selected as signal source for the outputs.

6 Signal outputs

The signal outputs are located on different connectors and are divided in the following groups:

6.1 Scanner output signals

The scanner signals are switched via relays. This allows the switching board to be independent from signal voltage of the scanner signals. The scanner signals are routed directly to the outputs without being manipulated by the board. Load on scanner signals is connected directly to the driving sources.

6.2 Intensity and colour signals

All intensity and colour signal routing is designed for maximum 5V differential input. If higher signal levels (differential voltage) are used as external ILDA signals, these signals are limited to 5V at the outputs. The external intensity and colour signals are all converted from symmetrical to single ended signals 0-5V and then routed to the colour outputs. The most important signals for RGB-projectors are located at one connector, while the additional 3 colours are located at a separate connector. The second colour output connector can be left unconnected if the projector supports RGB only. Do not connect outputs to ground or to driving sources. This can result in damage of the device or connected devices. Be sure that the load current of the outputs will not be higher than 5mA.

6.3 Interlock and shutter signal

The external interlock lines are permanently routed to corresponding pins of the switching board 1:1. They are electrically isolated from the board circuit. Interlock lines of the internal ILDA connector (if available) are not used.

The shutter output signal for controlling the shutter of the projector is available at an output pin of the board. It is routed from the external ILDA connector if the external source is selected and it is routed from the internal ILDA connector if the internal source is selected (default mode). Note that shutter signals are not amplified. Load is connected directly to the driving sources.

7 Additional hints

Be sure that pin 25 of the external ILDA connector is connected to GND of the external controller. Do not leave this pin unconnected.

If possible, connect all signal pairs of the external colour- and intensity signals. If your external controller (DAC) or your cable does not support the minus-lines (-) of the signals, let the minus-inputs open. The minus-inputs of the colour signals are supplied with pulldown resistors 2KOhm.

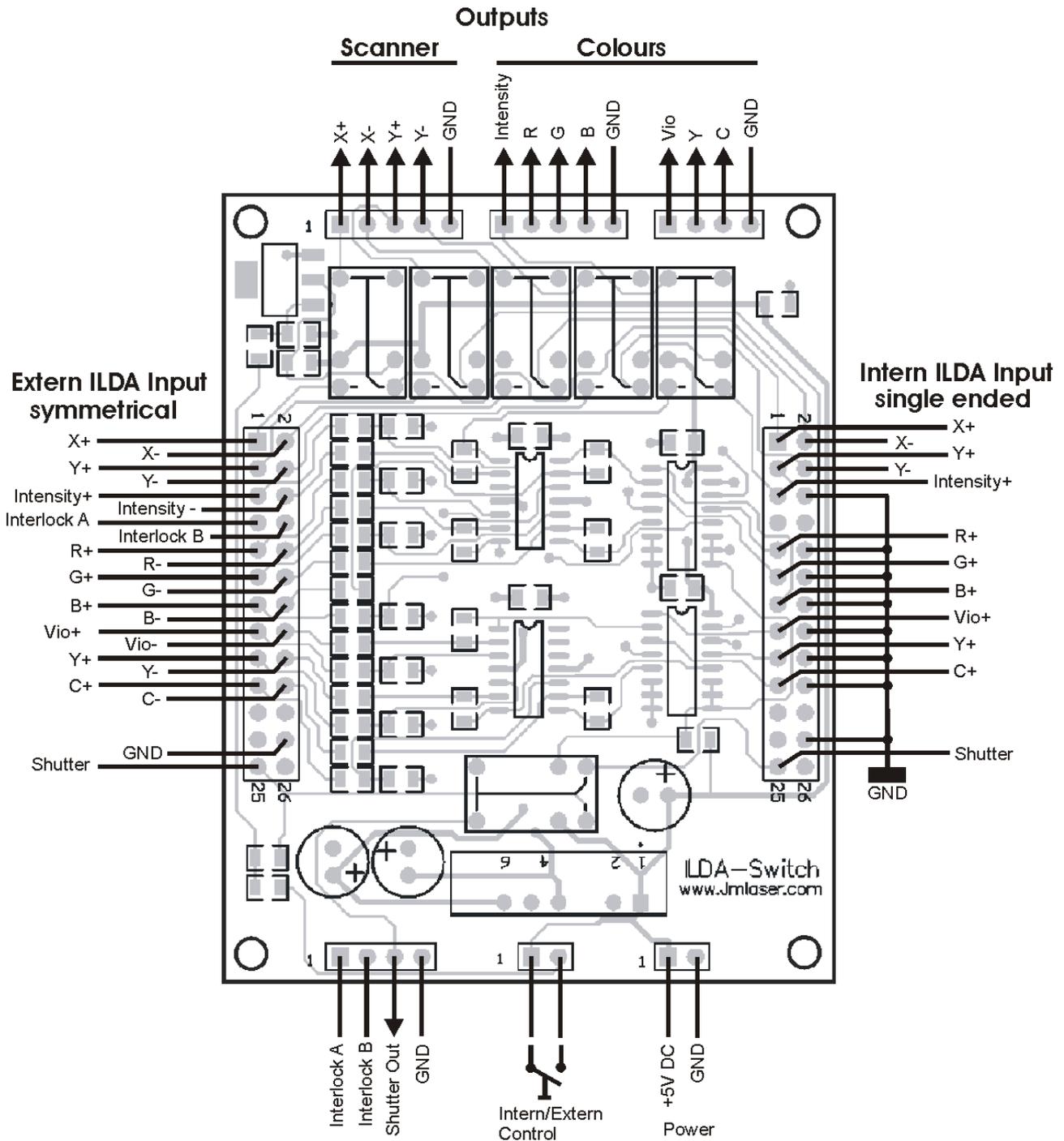
Caution: Some controller devices (DACs) make it necessary to close unconnected minus-lines to GND, others don't allow this.

But the pulldown resistors should be a safe solution for both types of devices.

If your scanner supports single ended X/Y signals only, ask the supplier of your external controller (DAC) how to connect the scanner signals.

Some devices allow the use of the plus (+) lines only, but mostly resulting in half the signal level.

Others suggest to pull the minus (-) lines to GND (pin 25).



Important Note

Output 'Shutter Out' represents the shutter signal of the external ILDA-input if external input is selected by control. It represents the internal shutter signal if no external signal source is selected. (= default mode).

Interlock A and Interlock B signals of the external ILDA-input are routed to pins 1:1 and can be used by external circuits.