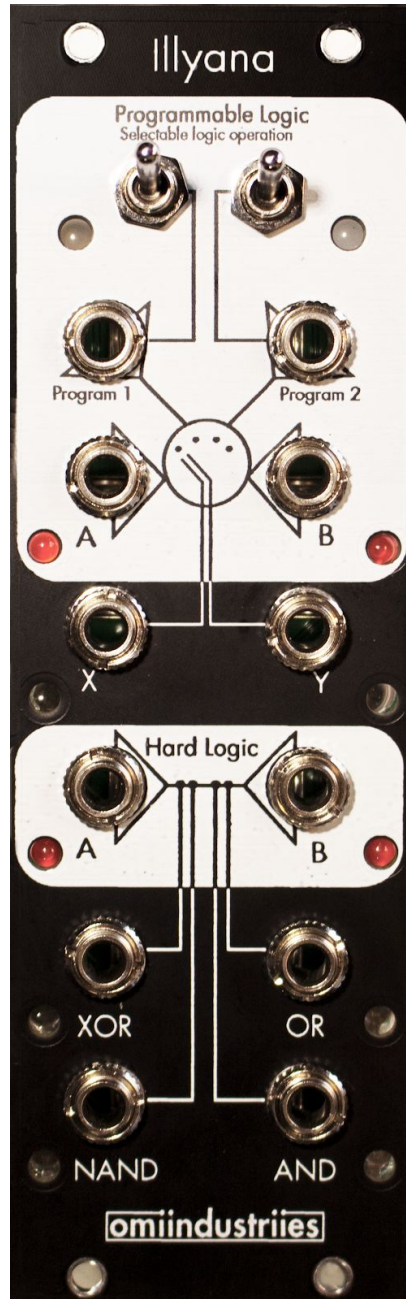


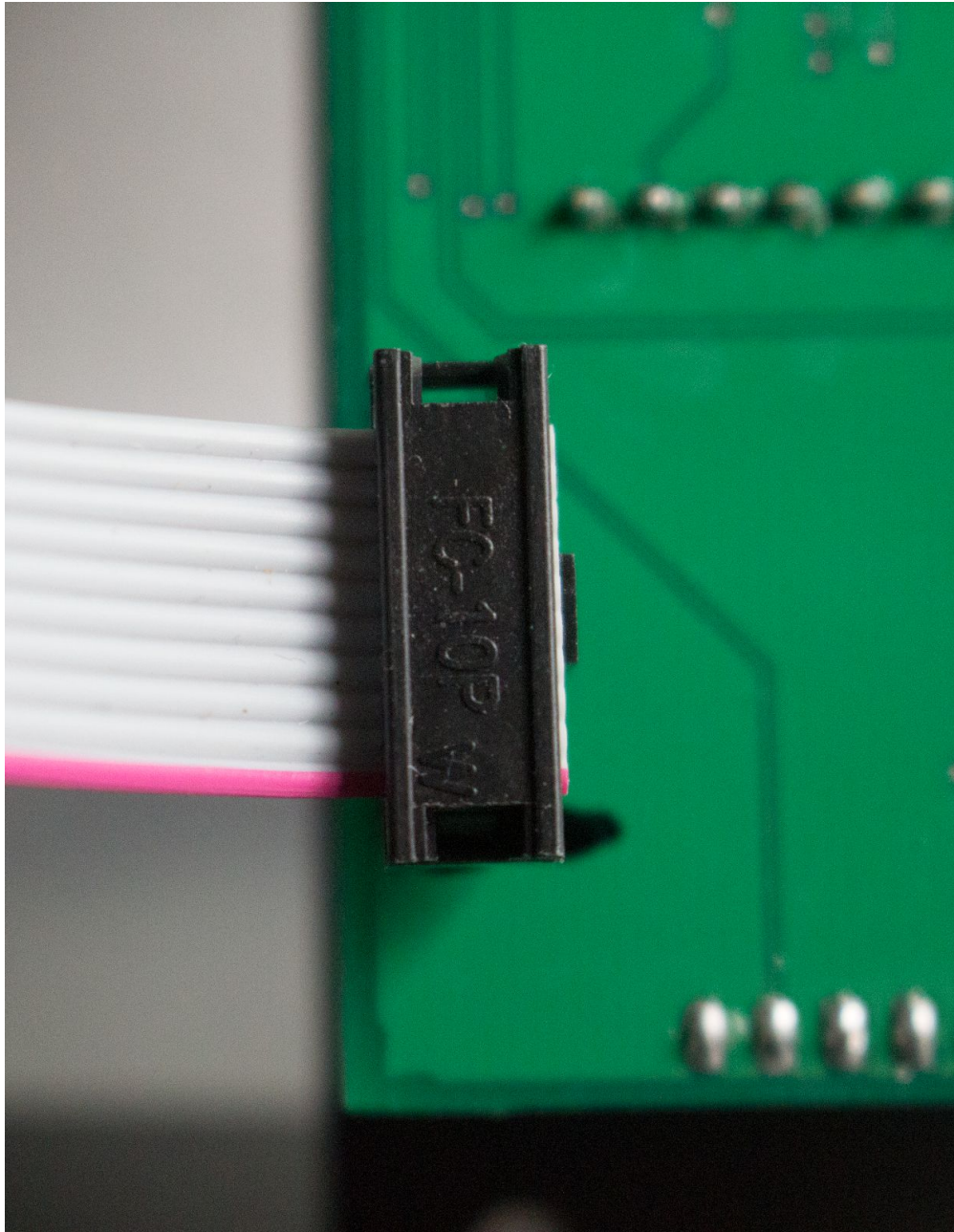
Illyana



omiindustriies

Installing Illyana

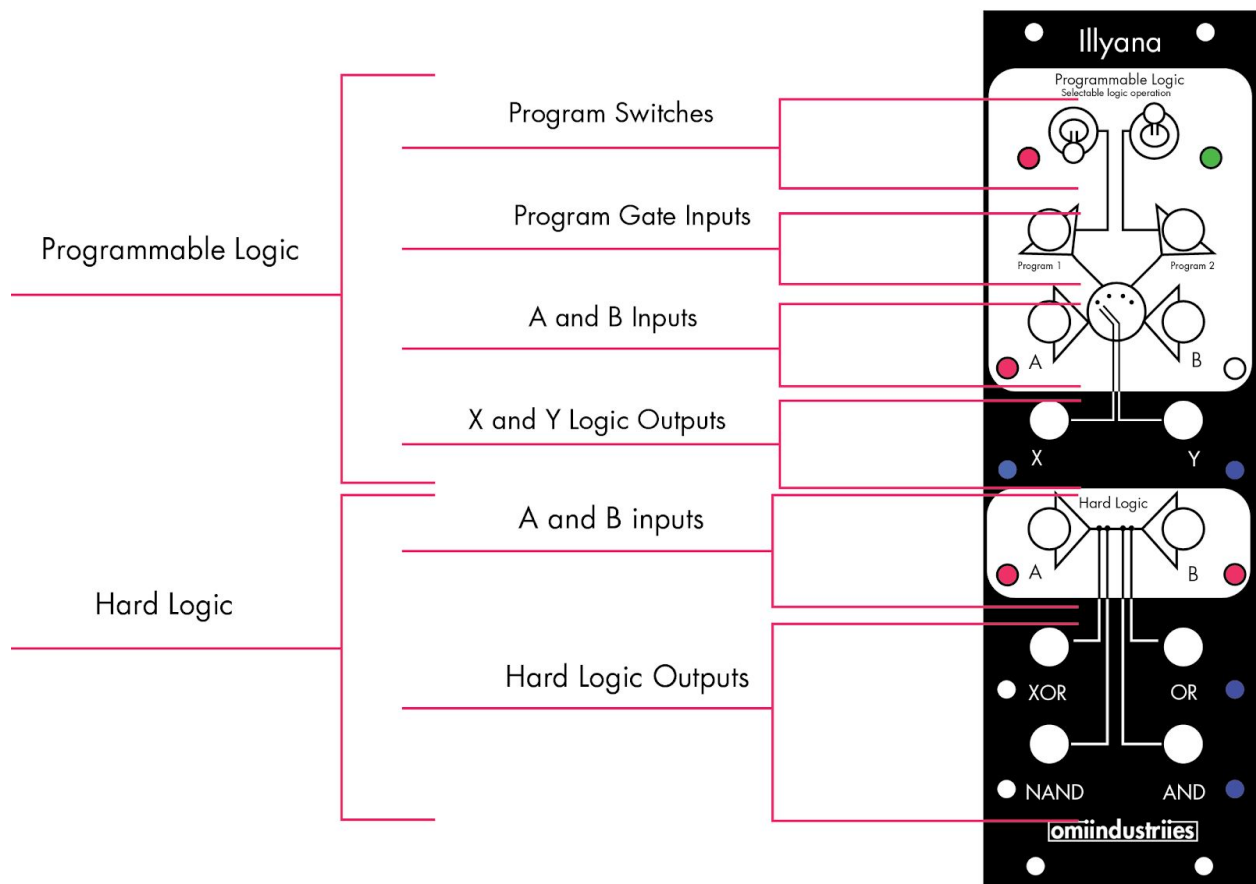
To install Illyana in your eurorack system, locate 8hp of available space. Connect the power supply with the red stripe facing down.



Illyana

Illyana is a two channel Boolean logic module. The bottom channel has two inputs, A and B, and 4 simultaneous logic outputs, XOR, OR, NAND, & AND, this channel is labeled Hard Logic because the outputs are normalized.

The top channel has the same A and B inputs as the bottom but which logic operation is present at the output can be programmed with the program switches and program gate inputs.



Hard Logic

The Hard Logic section has two inputs, A and B and four outputs, XOR, OR, NAND, & AND. A and B have red LEDs to indicate their state, the logic output states are indicated by blue LEDs.

OR logic means the output will be high if either or both of the two inputs is high.

AND logic means that the output will be high only when both inputs are high.

XOR means that the output will be high if one input or the other is high, but low if both or neither are high

NAND means the output will be high if neither of the inputs are high or if just one is high. It will be low if both inputs are high at the same time. It is the logical inverse of AND. When you turn the module on and have nothing patched in this LED will be lit.

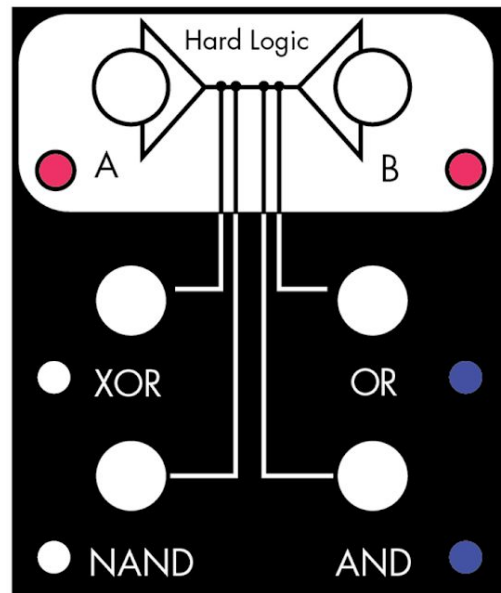
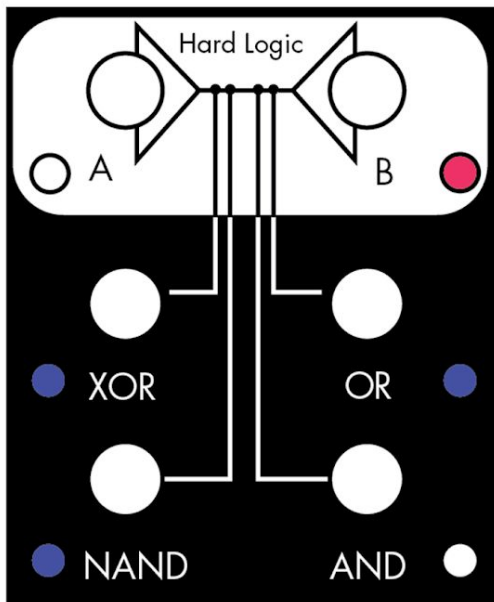
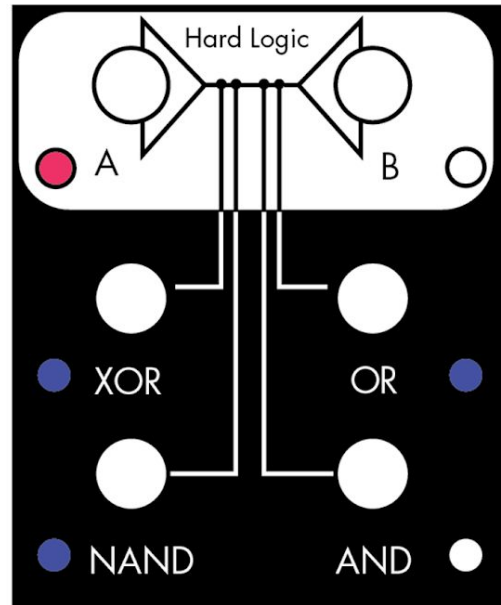
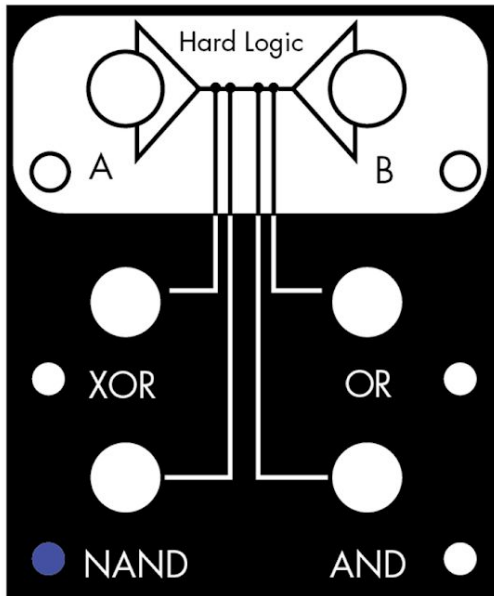
A	B	XOR
—	—	—
⌊	—	⌊
—	⌊	⌊
⌊	⌊	—

A	B	OR
—	—	—
⌊	—	⌊
—	⌊	⌊
⌊	⌊	⌊

A	B	NAND
—	—	⌊
⌊	—	⌊
—	⌊	⌊
⌊	⌊	—

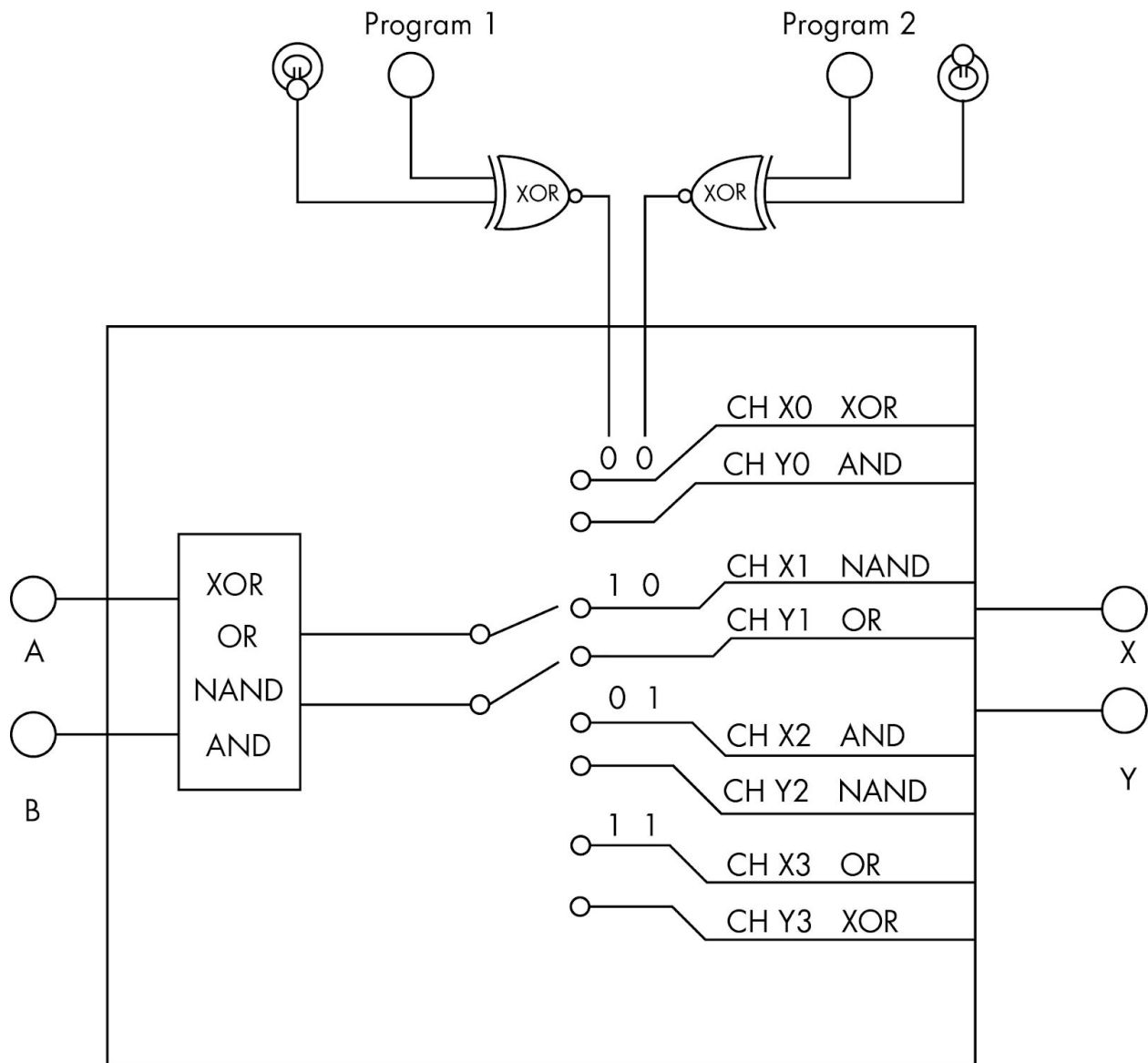
A	B	AND
—	—	—
⌊	—	—
—	⌊	—
⌊	⌊	⌊

Below is the truth table applied to the panel of Illyana. The red and blue LEDs indicate gate high.



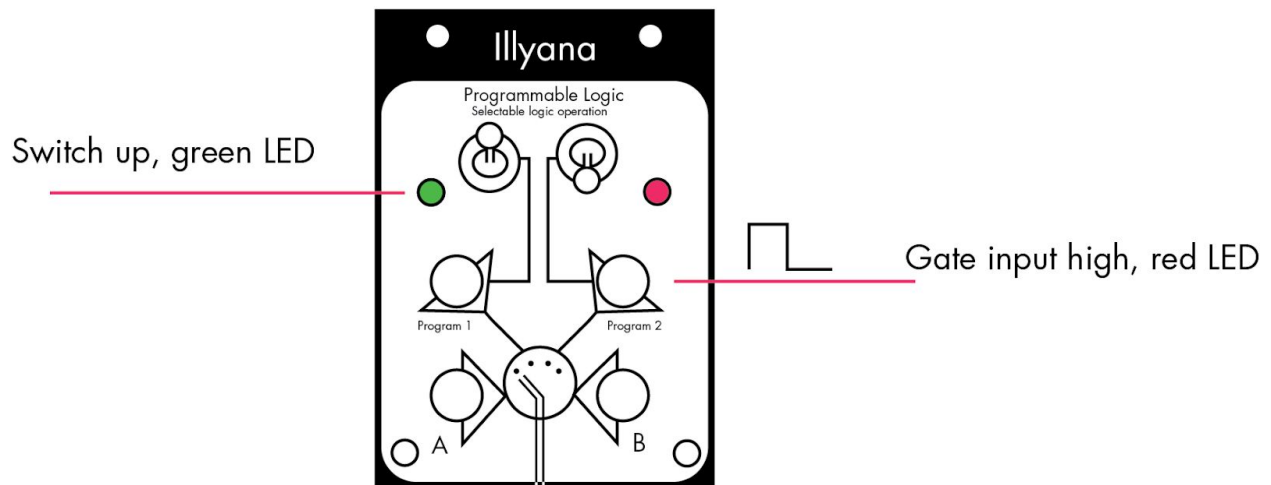
Programmable Logic

The Programmable Logic channel has all of the logic operations present as the Hard Logic but has two outputs. The selectable logic section features two gate inputs Program 1 and Program 2 and two switches in addition to the A and B logic inputs.

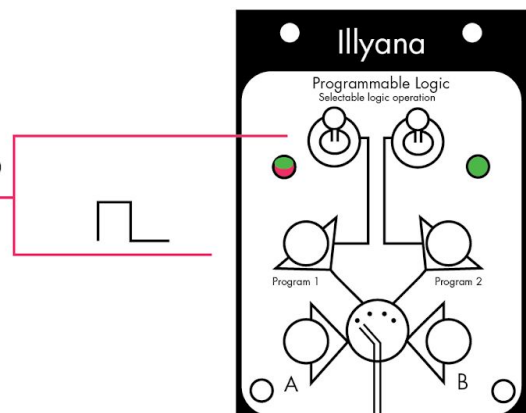


1 in this diagram indicates a high state. When the switches are in the up position they are high and when the program gate inputs receive a gate input they are high. They are XOR'd with each other so if the program 2 switch is high and it gets a gate input, it will result in a low state for that program channel. The state of the switches and gates

are indicated by the same LED. The switches are indicated by an illuminated green LED and the gate inputs are indicated by an illuminated red LED. If both are high at the same time the LED will be a mix of red and green.



Switch up and gate input high, mix of red and green LED



Using Logic

The best way to get to know the Illyana is just to patch a lot of gates inputs. Start with the Programmable Logic. Patch gate signals into the A and B. Connect the X output to the input of an envelope generator or drum module. For now don't plug anything into the program gate inputs. Try different combinations of switch positions. There are four possible states for the switches to be in, corresponding to the four logic types. Listen to the different patterns made by each logic type. This exercise should give you

an understanding of how to use the Hard Logic. Now patch other gate signals into the Program 1 and 2 gate inputs. These gate inputs are XOR'd with the switches. If you have a switch in the up position and you send a gate signal into the program input you effectively cancel the state of the switch.

The name Illyana

Originally this project started as a 16hp 4 channel logic module. I was doing research and found the first computer that utilized programmable logic was a British code breaking computer from WWII that helped break the Lorenz cypher. The project was kept secret until the mid 70's.

I decided to scale down the module to half the size while at the same time adding some features. In addition to being a code breaking computer Colossus is the name of an X-Men character. He has a sister named Illyana Rasputin.

Illyana = sister of Colossus

Thank you to

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