SYMETRIX SOLUTIONS: TECH TIP

August 2014

Logic Programming in SymNet

Intro:

SymNet provides a virtual toolkit of logic modules that allow an Integrator to create or provide functionality within a SymNet system that is either not inherent or is esoteric in nature.

There are two types of logic programming in SymNet. The first revolves around either manipulating a continuous variable output, such as a control fader module, before the control signal is assigned to a volume control within the audio signal path. The second is would be events based upon the state of or the trigger from a Boolean control, such as the momentary, latched, and radio button modules.

Modules found under the Control Processes heading in SymNet Composer deal with continuous control signals while those under control Logics deal primarily with Boolean control signals.

A continuous control signal created by a control fader will have an output that can vary from 0-100%.

Continuous control signals and their manipulation by control processes is pretty straight forward.

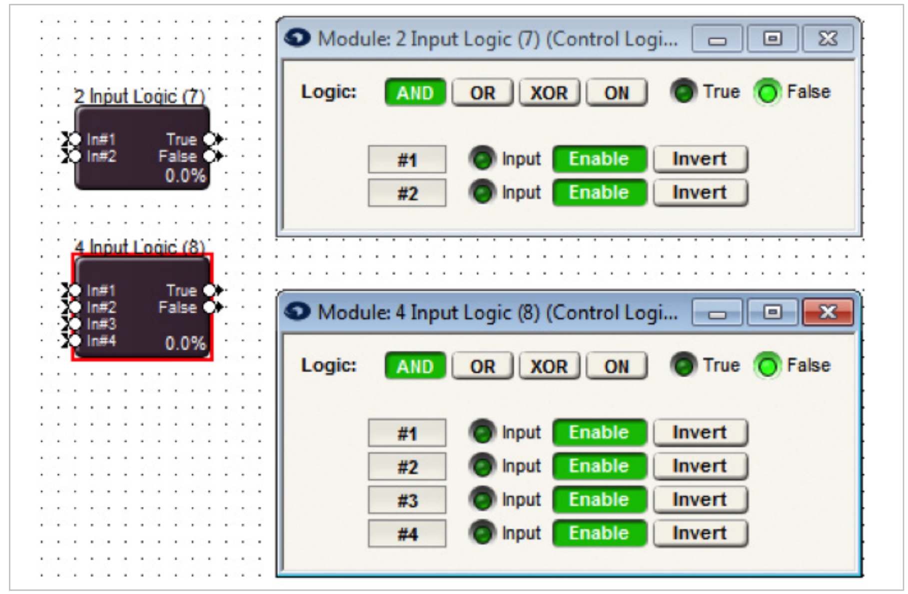
Boolean control signals have many uses and may require a basic understanding of binary logic and the use of truth tables.

A Boolean control signal, like those created from a control button module is most typically On or Off, which as a control signal is 0 or 100%. That being said, the buttons can be scaled so that the On/Off values can be any two values between 0 and 100, an example would be 90% = on and 10% = off.

When multiple Boolean controls feed a single module, the results are typically outlined with a truth table. As such, it is imperative to understand how to read and apply the results a truth table outlines.

Truth Tables:

A truth table is composed of one column for each input variable (for example, Input 1 and Input 2), and one final column for all of the possible results of the logical operation that the table is meant to represent (for example, AND, OR, XOR).



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Each row of the truth table therefore contains one possible configuration of the input variables (for instance, A=true B=false), and the result of the operation for those values (for example, AND=false, OR=true, XOR=true).

Inputs		Outputs (True)			
In#1	In#2	And	Or	Xor	On
0	0	0	0	0	1
0	1	0	1	1	1
1	0	0	1	1	1
1	1	1	1	0	1

Truth table for 2 input logic modue

Inputs				Outputs (True)			
In#1	In#2	In#3	In#4	And	Or	Xor	On
0	0	0	0	0	0	0	1
0	0	0	1	0	1	1	1
0	0	1	0	0	1	1	1
0	0	1	1	0	1	0	1
0	1	0	0	0	1	1	1
0	1	0	1	0	1	1	1
0	1	1	0	0	1	0	1
0	1	1	1	0	1	1	1
1	0	0	0	0	1	1	1
1	0	0	1	0	1	0	1
1	0	1	0	0	1	1	1
1	0	1	1	0	1	1	1
1	1	0	0	0	1	0	1
1	1	0	1	0	1	1	1
1	1	1	0	0	1	1	1
1	1	1	1	1	1	0	1

Truth table for 4 input logic modue

Note: *0 = false 0r 0%, 1 = True or 100%. If the False output is used, substitute 0 for 1 and visa versa for all outputs. The tables all inputs are enabled.*