Visible Signals

One Of Four

DIY Video Synthesizer module for Eurorack

Manual V0.2a

One Of Four is a four input to one output high bandwidth signal switcher for modular video systems.

All Visible Signals manuals include a version number, which corresponds to the version number printed on the PCBs, plus a revision letter. Please make sure the manual you use has the same version number as your PCBs! Contact info@visiblesignals.net if you can't find the right manual.

RESISTORS

	Part	Value		Part	Value
☐	R1	100K	☐	R19	1K
☐	R3	100K	☐	R20	1K
☐	R8	100K	☐	R24	1K
☐	R22	100K	☐	R27	1K
☐	R32	100K	☐	R30	1K
☐	R33	100K	☐	R31	1K
☐	R34	100K	☐	R28	180K
☐	R35	100K	☐	R26	20K
☐	R36	100K	☐	R2	499R
☐	R37	100K	☐	R4	499R
☐	R38	100K	☐	R9	499R
☐	R39	100K	☐	R11	499R
☐	R5	1K	☐	R13	499R
☐	R6	1K	☐	R15	499R
☐	R7	1K	☐	R18	499R
☐	R10	1K	☐	R21	499R
☐	R12	1K	☐	R23	499R
☐	R14	1K	☐	R25	499R
☐	R16	1K	☐	R29	499R
☐	R17	1K			

DIODES & FERRITES

Make sure the diodes are in the right way. Of the diodes, only D1 and D2 are marked on the PCB silkscreen since all the rest are the same part (1N5711).

	Part	Value		Part	Value
☐	D1	1N400x	☐	D3	1N5711
☐	D2	1N400x	☐	D4	1N5711
☐	L1	Ferrite Bead	☐	D5	1N5711
☐	L2	Ferrite Bead	☐	D6	1N5711

INTEGRATED CIRCUITS

Make sure the ICs are in the right way, with the notch (or the left side relative to the writing on top of the chip) lined up with the silkscreen.

	Part	Value		Part	Value
☐	IC1	LM6172	☐	IC4	LM6172
☐	IC2	LM6172	☐	IC5	AD8184
☐	IC3	LM6172			

MLCC CAPACITORS

All unlabelled capacitors on the PCB silkscreen are 100nF MLCC types.

	Part	Value		Part	Value
☐	C4	100n	☐	C10	100n
☐	C5	100n	☐	C11	100n
☐	C6	100n	☐	C12	100n
☐	C7	100n	☐	C13	100n
☐	C8	100n	☐	C14	100n
☐	C9	100n	☐	C15	100n

SOCKETS

Make sure the sockets fit into the front panel as you solder them.

	Part	Value		Part	Value
☐	A1	PJ302M	☐	1/2	PJ302M
☐	A2	PJ302M	☐	A/B	PJ302M
☐	B1	PJ302M	☐	OUT	PJ302M
☐	B2	PJ302M			

VOLTAGE REGULATORS

Insert the voltage regulators, then bend the legs over at a right angle so that the screw mounting holes lines up. You don't need to mount the regulators to the board but you can if you want to.

	Part	Value		Part	Value
☐	REG1	7905T		REG2	7805T

ELECTROLYTIC CAPACITORS

Make sure the long legs go in the hole marked with a '+'.

	Part	Value		Part	Value
☐	C1	10uF	☐	C3	10uF
☐	C2	10uF			

POWER HEADER

Make sure the notch on the shrouded power header is on the outside edge of the PCB.
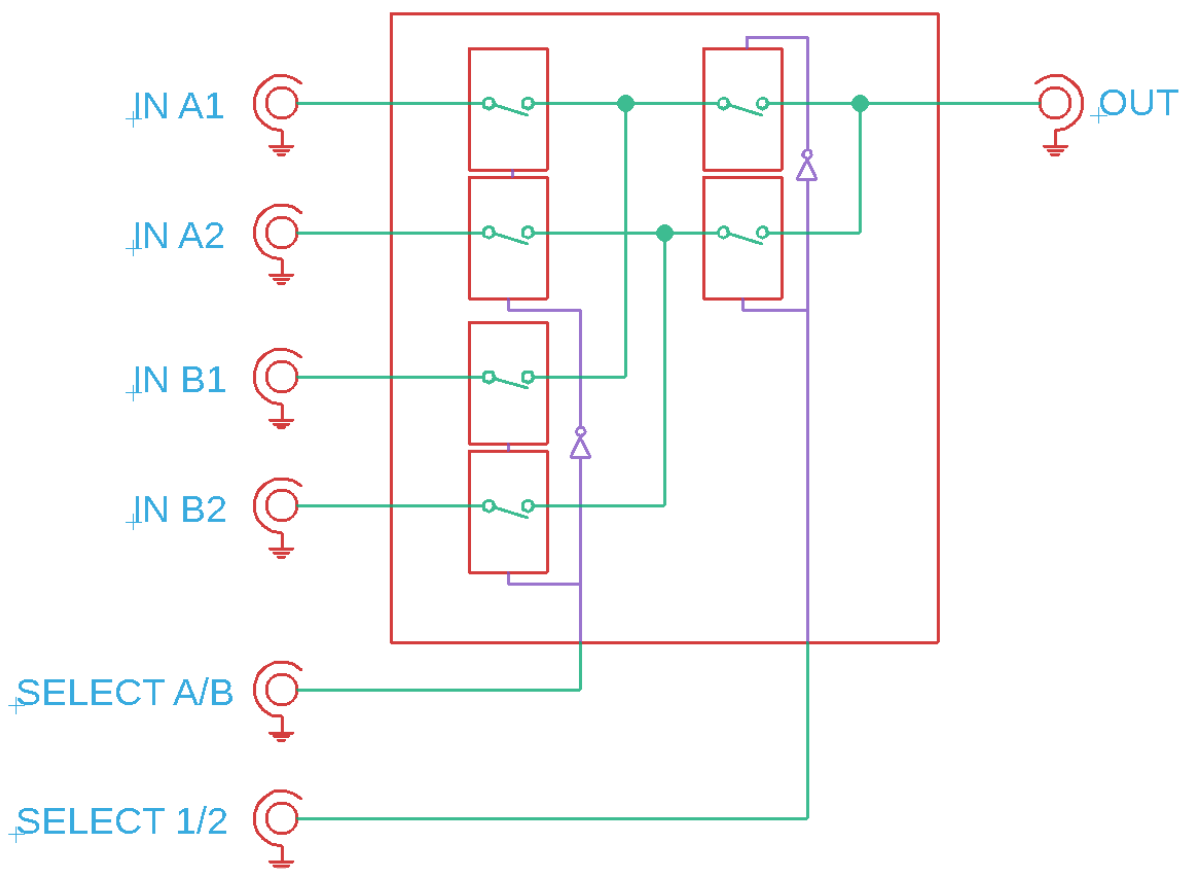
	Part	Value
☐	POWER	5x2 Pin Header

Circuit Details

One Of Four has four signal inputs (A1, A2, B1 and B2), one output, and two "select" inputs (A/B and 1/2) that controls which input is connected to the output at any moment. The switching speed is very fast, to ensure sharp edges and input transitions at high bandwidths.

When both the A/B and 1/2 controls are a low voltage (< 0.5V) input A1 is connected to the output. When A/B is low and 1/2 is high voltage (> 0.5V) then input A2 is connected to the output. When the A/B control is a high voltage the connections are similar but using the B inputs instead of the A inputs.

Although primarily intended for use with LZX-compatible eurorack video signals levels (0-1V), the inputs and output are all properly buffered and can be used in with any eurorack signals of up to +/- 10V.

Bill of Materials

Parts marked with an asterisk are frequently used in Visible Signals modules, so consider stocking up if there's a quantity discount available.

Type	Value/Description	Qty	Vendor	Part Number	*	Notes
MLCC Capacitor	100n	12	Mouser	594-K104K15X7RF53K2	*	
Diode	1N400x	2	Mouser	750-1N4001-G	*	Any part like 1N4001, 1N4004, etc is fine
Diode	1N5711	4	Mouser	511-1N5711	*	
Electrolytic Capacitor	10uF	3	Mouser	80-ESL106M050AC3AA	*	
Ferrite bead	Ferrite bead	2	Mouser	623-2743001111	*	
IC	AD8184	1	Mouser	584-AD8184ANZ		
IC	LM6172	4	Mouser	926-LM6172IN/NOPB	*	
PCB	One Of Four PCB set	1	Visible Signals	OOF		
Panel	One Of Four PCB set	1	Visible Signals	OOF		
Pin Header	Pin header 5x2	1	Mouser	710-61201021621	*	Shrouded
Resistor	100K	12	Mouser	603-MFR-25FBF52-100K	*	
Resistor	180K	1	Mouser	603-MFR-25FBF52-180K		
Resistor	1K	14	Mouser	603-MFR-25FBF52-1K	*	
Resistor	20K	1	Mouser	603-MFR-25FBF52-20K		
Resistor	499R	11	Mouser	594-5063JD499R0F	*	
Socket	PJ302M	7	Thonk	PJ302M	*	
Voltage Regulator	7805	1	Mouser	511-L7805CV		
Voltage Regulator	7905	1	Mouser	511-L7905CV		