



# Dreamtime Delay

**FX TYPE: Delay**

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The **Dreamtime Delay** is an analog-voiced digital delay that utilizes the SpinSemi FV-1 chip. It is a unique delay in that there is no commercial pedal on the market in this form factor that does what the Dreamtime can do. The “hook” of the Dreamtime is the FX knob which provides a wide variety of delay effects as you turn the knob. This lets you create many unique delay tones without sounding “gimmicky”. The Dreamtime also includes a switch to turn it into a modulated reverb. This is done by accessing patch 0 of the internal FV-1 programming. The delay and reverb cannot be used simultaneously, however.

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## Delay Controls (D/R switch left)

**TIME (P0):** Sets the delay time from about 15ms up to 975ms.

**RPT (P1):** Sets the repeats from 0 to “infinite”.

**FX (P2):**

- 0 - No effect
- 25%: Slow Modulation
- 50%: Fast Modulation
- 66%: Granular/RingMod
- 75%: Fast Tremolo
- 100%: Slow Tremolo

**Blend:**

- 0 - dry only
- 40-50%: about 50/50 dry and wet.
- 100%: wet only with some boost

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## Reverb Controls (D/R switch right)

**Reverb (P2):** Sets the reverb amount from small to large (it’s basically a hall reverb).

**Width (P1):** Sets the modulation width.

**Speed (P0):** Sets the modulation speed.

**Blend:** Has little effect. The internal program includes the dry path so it is not possible to do wet only.

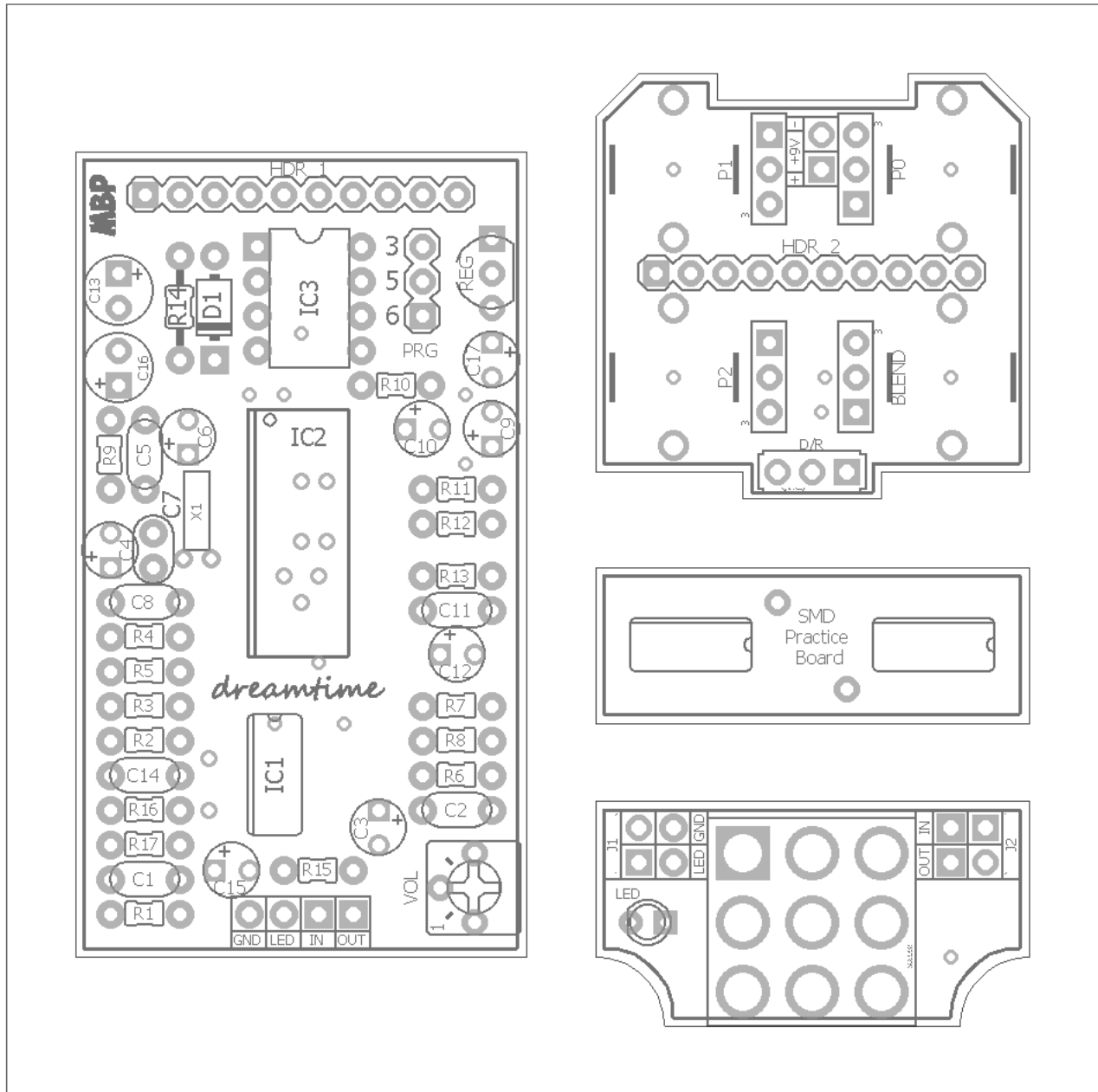
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**Dreamtime Delay youTube Demo:** <https://youtu.be/0XO7TKlffds>

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**Terms of Use:** You are free to use purchased **Dreamtime Delay** circuit boards for both DIY and small commercial operations. You may not offer **Dreamtime Delay** PCBs for resale or as part of a “kit” in a commercial fashion. Peer to peer re-sale is, of course, okay.

## Dimensions: 80mm x 80mm (panel)

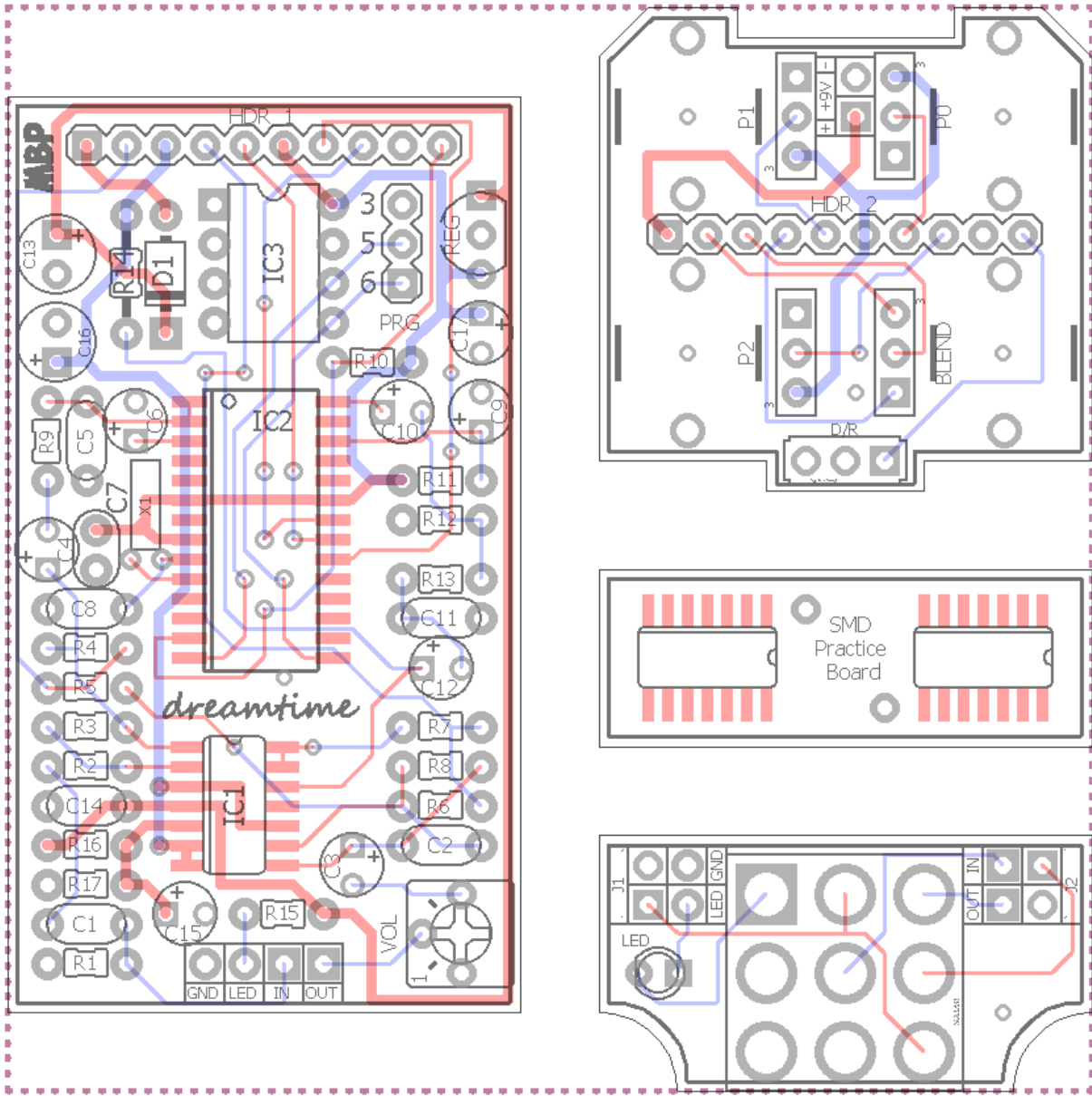


The Dreamtime Delay comes as a panel of four PCBs which are v-scored. You will need to break them apart before population (it's easy to do). The four boards are the **main**, **pots**, **practice** and **switch** boards.

The main board holds all the audio components. It is wired to the pots board which contains the four 9mm potentiometers and the mini SPDT switch. The switch board is for your 3PDT and bypass LED. The practice board is for practicing your surface mount soldering before populating the main board. It has no functional purpose to the delay. It's included for anyone who has not soldered surface mount chips before to give them a chance to get a feel for it. Instructions on how to solder surface mount chips are included in the Dreamtime Build Guide.

**Note:** if you are going to use the practice board, I suggest NOT breaking the PCBs apart first. This will give the practice board a little more stability while soldering.

# Trace Routing



## **B.O.M.**

Resistors		Caps		Diodes	
R1	1M	C1	100n	D1	1N5817
R2	1M	C2	220pF	IC	
R3	1M	C3	1uF	IC1	TL074
R4	10k	C4	1uF	IC2	FV-1
R5	10k	C5	1n	IC3	EEPROM
R6	10k	C6	1uF	Regulator	
R7	10k	C7	100n	REG	L78L33
R8	33k	C8	15pF	Crystal	
R9	8k2	C9	1uF	X1	32768Hz
R10	20k	C10	1uF	Switch	
R11	100R	C11	8n2	D/R	SPDT
R12	10k	C12	1uF	Socket	
R13	1k	C13	47uF	PRG	3PIN
R14	1M	C14	100n	Trimpot	
R15	4k7	C15	10uF	VOL	100k
R16	10k	C16	1uF	Pots	
R17	10k	C17	10uF	P0	50kB
				P1	50kB
				P2	50kB
				BLEND	10kA

The EEPROM is included with the Dreamtime Delay project. It contains the pre-programmed delay patch.

## Shopping List

Value	QTY	Type	Rating	Spacing	Mouser Cart
100R	1	Metal / Carbon Film	1/8W	5mm	■
1k	1	Metal / Carbon Film	1/8W	5mm	■
4k7	1	Metal / Carbon Film	1/8W	5mm	■
8k2	1	Metal / Carbon Film	1/8W	5mm	■
10k	7	Metal / Carbon Film	1/8W	5mm	■
20k	1	Metal / Carbon Film	1/8W	5mm	■
33k	1	Metal / Carbon Film	1/8W	5mm	■
1M	4	Metal / Carbon Film	1/8W	5mm	■
15pF	1	MLCC	16v min.	5mm	■
220pF	1	MLCC	16v min.	5mm	■
100n	1	MLCC	16v min.	<b>2.5mm</b>	■
1n	1	Film	16v min.	5mm	■
8n2	1	Film	16v min.	5mm	■
100n	2	Film	16v min.	5mm	■
1uF	7	Electrolytic	16v min.		■
10uF	2	Electrolytic	16v min.		■
47uF	1	Electrolytic	16v min.		■
1N5817	1				■
TL074	1	SMD			■
L78L33	1	3.3v Regulator			■
100k	1	Bourns 3362p			■
PDIP	1	Low Profile 8-Pin Socket			■
EEPROM	1	<b>included w/PCB</b>			
FV-1	1	SMD			x
32768Hz	1	Crystal			x
SPDT	1	Mini SPDT			x
3PIN	1	SIL Socket			x
10kA	1	PCB Right Angle	9mm		x
50kB	3	PCB Right Angle	9mm		x

For your convenience, I have created a Mouser cart that includes all the items with the red blocks.

<https://www.mouser.com/ProjectManager/ProjectDetail.aspx?AccessID=18276a96bf>

## **BOM Notes**

- The Mouser cart includes 3 surface mount TL074. The extra two chips are for the practice board. If you don't plan on using the practice board, you only need one of the TL074.
- The ultra-low profile DIP socket and a 3-pin header are only needed if you plan on using a different pre-programmed EEPROM in the Dreamtime project. Details on how to program a 24LC32a EEPROM are included in the Dreamtime build doc. If you do not plan on switching out the EEPROM, you can exclude the two sockets (in this case just solder the included EEPROM directly to the main PCB).

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## **Additional Parts**

- FV-1 with crystal: <http://www.smallbear-electronics.mybigcommerce.com/spin-semi-fv-1-with-crystal/>
- Mini SPDT: <http://www.smallbear-electronics.mybigcommerce.com/spdt-on-on-mountain-10tc410/>
- SIL Socket: <http://www.smallbear-electronics.mybigcommerce.com/single-in-line-mill-max/>
- 10kA (1), 50kB (3) 9mm Alpha pots: <http://www.smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-right-angle-pc-mount/>

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**I also recommend you use the following hardware (the drill template is designed for these, as well).**

- 3PDT (1): <http://www.smallbear-electronics.mybigcommerce.com/cic-blue-3pdt/>
- I/O Jacks (2): <http://www.smallbear-electronics.mybigcommerce.com/lumberg-1-4-compact-shrouded-mono-jack/>
- DC Jack (1): <http://www.smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched-2-1-mm/>
- Knobs (4): <http://www.smallbear-electronics.mybigcommerce.com/fluted-miniature-colored-pointer/>
- 3mm LED (1): <http://www.smallbear-electronics.mybigcommerce.com/led-t-1-3mm-diffused-colors/>

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**A flux pen is not required, but can make surface mount soldering much easier!**

<https://www.mouser.com/ProductDetail/Chip-Quik/CQ4LF?qs=sGAEpiMZZMve4%2fbfQkoj%252bAY%252bezPE9ihl-4WaegV7SITQ%3d>

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## Voltages

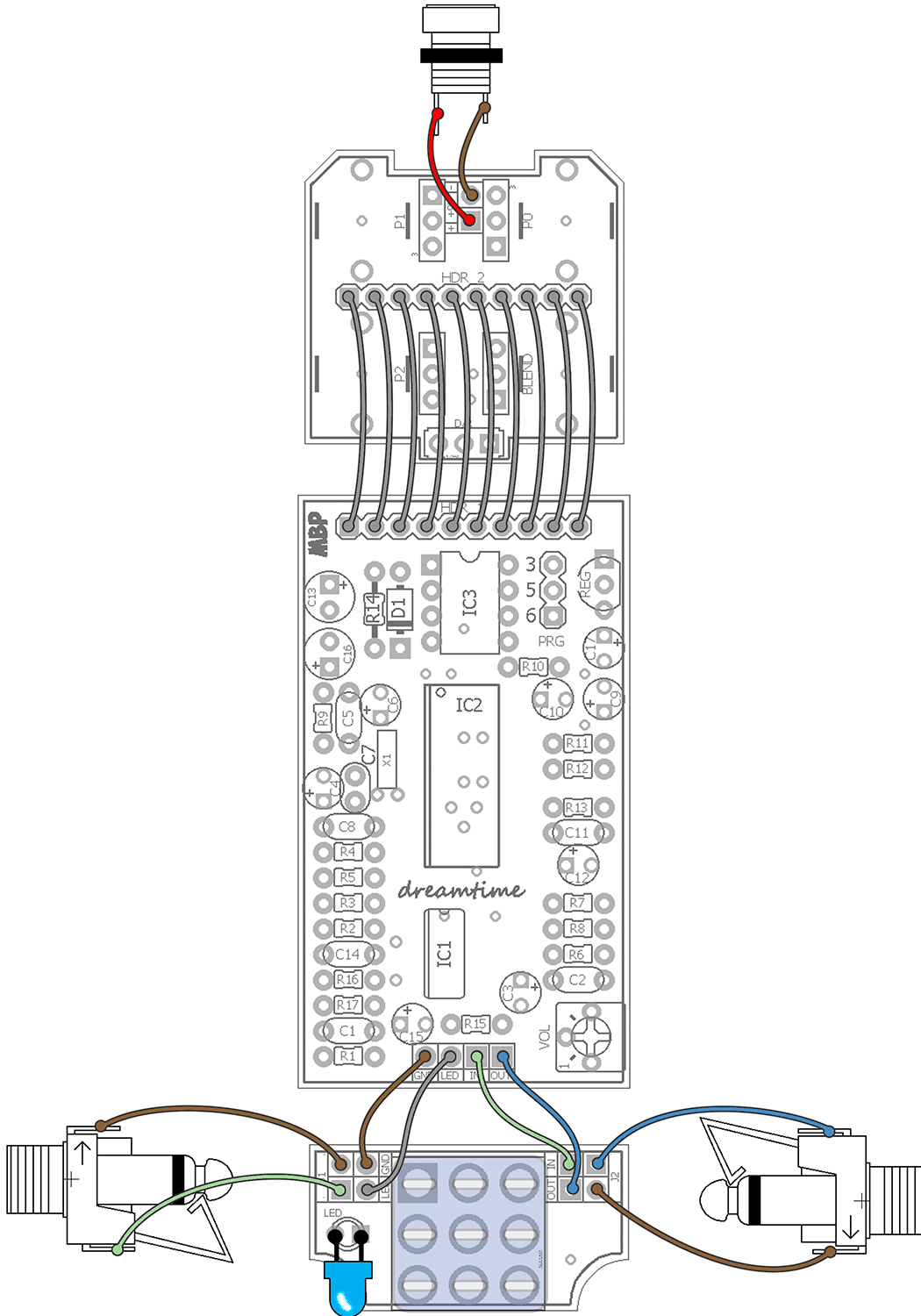
IC1	TL074	IC2	FV-1
1	4.53	1	1.61
2	4.53	2	1.61
3	4.53	3	1.61
4	9.06	4	0
5	4.53	5	3.22
6	4.53	6	3.23
7	4.53	7	1.6mV
8	4.53	8	3.23
9	4.53	9	1.51
10	4.53	10	1.41
11	0	11	1.6mV
12	4.13	12	1.6mV
13	4.53	13	3.23
14	4.53	14	3.23
		15	3.23
		16	1.6mV
		17	1.6mV
		18	1.6mV
		19	1.6mV
		20	0
		21	0
		22	0
		23	3.23
		24	1.6mV
		25	1.6mV
		26	3.2
		27	1.66
		28	1.65

IC3	24LC32a
1	0
2	0
3	0
4	0
5	3.23
6	3.23
7	0
8	3.23

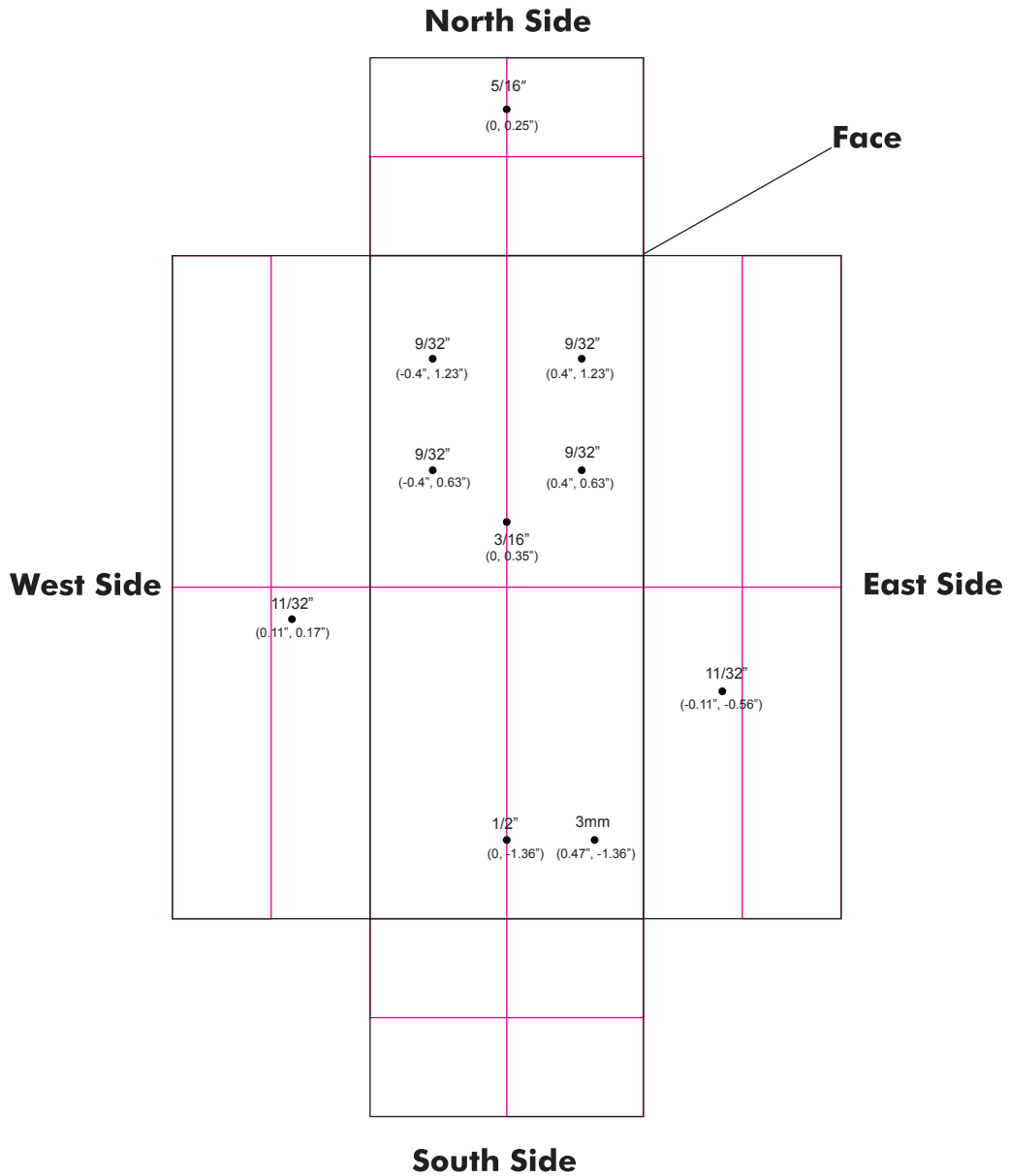
9.42v DC Supply. All knobs set to 0 with the toggle switch in the "Delay" position.

# Wiring





# 1590A Drill Guide



This template may soon be available as a pre-drilled enclosure through PedalPartsPlus.

# Schematic

