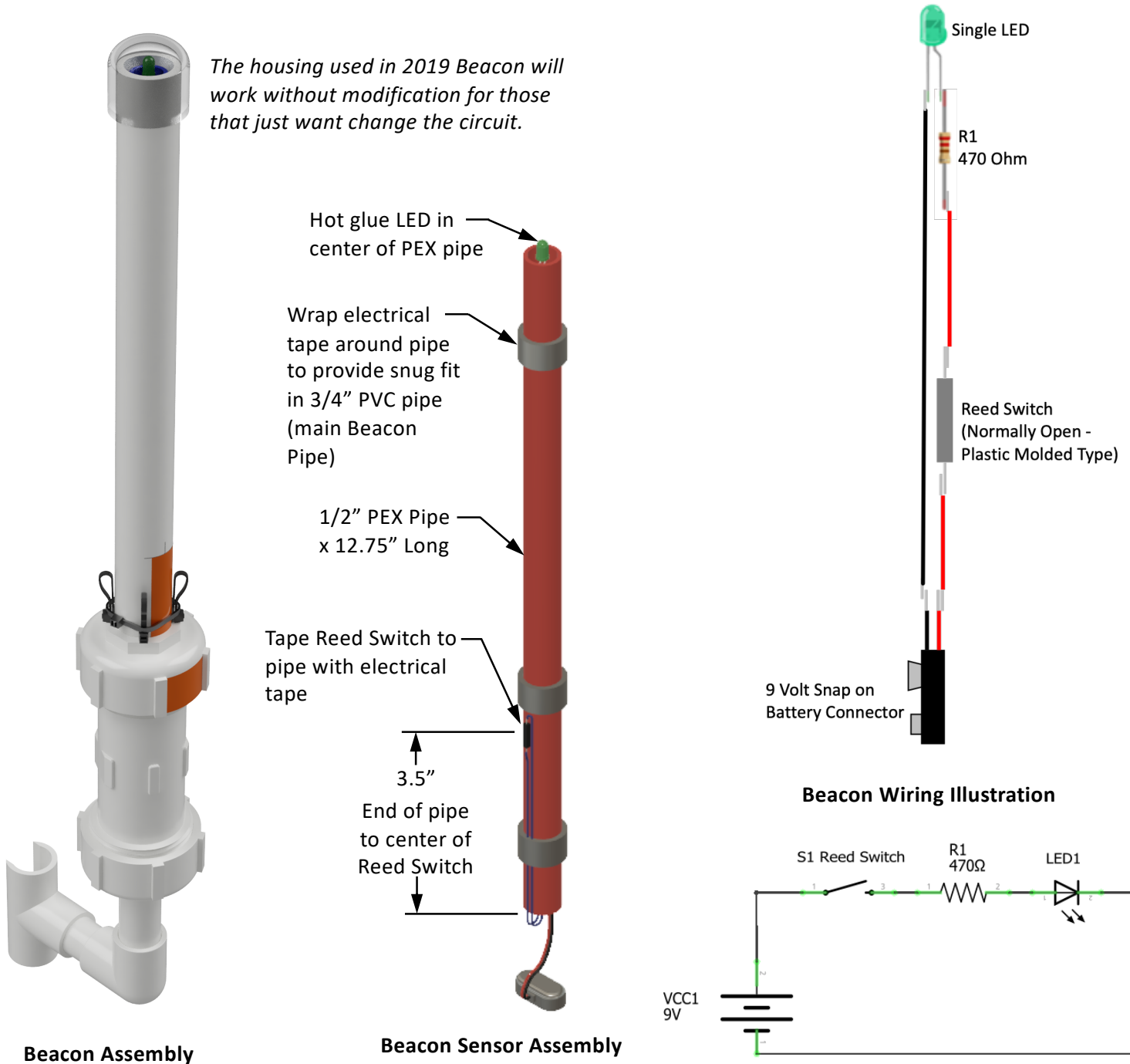


# SeaPerch Challenge Beacon – Simplified-Circuit



This guide offers details for a simplified-circuit Beacon for those desiring to use the electronic version with the LED indicator. The simplified-circuit version uses a reed switch (mechanical magnetic switch) instead of a Hall Effect Sensor (electronic magnetic switch) and a single LED to reduce assembly complexity.

Seaperch Regional Competitions and teams that did not build a Beacon for the 2019 SeaPerch Challenge may choose to build a non-electronic version of the Beacon for the Active Mine for a low-cost, lower-effort alternative to the electronic beacon (see the 2020 SeaPerch Challenge Build Guide).



# SeaPerch Challenge Beacon – Simplified-Circuit



Bill of Material								
Beacon Circuit								
Drawing Part Number	Item	Unit	Qty.	Est. Cost Each	Extended Cost	Suggested Vendor	Part Number	Vendor Link
	LED, 5mm Green, 20mA, 3.2V	Each	1	\$ 0.25	\$ 0.25	Digi-Key	C503B-GCN-CY0C0791-ND	<a href="#">LED - Digi-Key</a>
	Reed Switch, SPST-NO (normally open), 350mA 140V	Each	1	\$ 1.97	\$ 1.97	Digi-Key	HE552-ND	<a href="#">Reed Switch - Digi-Key</a>
	470 Ohm Resistor, ±5%, 1/4W Through Hole	Each	1	\$ 0.10	\$ 0.10	Digi-Key	CF14JT470RCT-ND	<a href="#">Resistor - Digi-Key</a>
	9-Volt Snap on Battery Connector with 4" wire leads	Each	1	\$ 0.57	\$ 0.57	Digi-Key	36-81-4-ND	<a href="#">Battery Clip - Digi-Key</a>
	26-AWG Stranded Hookup Wire, Red, per foot	Each	2	\$ 0.81	\$ 1.62	Digi-Key	A132378-DS-ND	<a href="#">Red Wire - Digi-Key</a>
	26-AWG Stranded Hookup Wire, Black, per foot	Each	2	\$ 0.81	\$ 1.62	Digi-Key	44A0111-26-0-US-DS-ND	<a href="#">Black Wire - Digi-Key</a>
				Total	\$ 6.13			
Beacon Hardware								
BC2R	3/4" Sch 40 PVC Coupler	Each	1	\$ 0.18	\$ 0.18	PVC Fittings Online	429-007	<a href="#">PVC Fittings Online</a>
BC2PC	3/4" Sch 40 Clear PVC Cap	Each	1	\$ 6.48	\$ 6.48	PVC Fittings Online	447-007L	<a href="#">PVC Fittings Online</a>
BA1	1/2" Sch 40 PVC Elbow	Each	1	\$ 0.20	\$ 0.20	PVC Fittings Online	406-005	<a href="#">PVC Fittings Online</a>
BF1	1/2" PVC Sch 40 Snap-on Saddle Tee	Each	1	\$ 0.44	\$ 0.44	PVC Fittings Online	463-005	<a href="#">PVC Fittings Online</a>
BK3	1" Spears PVC Compression Coupling S110-10	Each	1	\$ 4.74	\$ 4.74	PVC Fittings Online		<a href="#">PVC Fittings Online</a>
BD2	1" X 1/2" Sch 40 PVC Reducing Bushing	Each	1	\$ 0.37	\$ 0.37	PVC Fittings Online	437-130	<a href="#">PVC Fittings Online</a>
BD3	1" X 3/4" Sch 40 PVC Reducing Bushing	Each	1	\$ 0.37	\$ 0.37	PVC Fitting Online	437-131	<a href="#">PVC Fittings Online</a>
AA2	1/2" Sch 40 PVC Pipe X 2" Lg	Each	1	\$ 0.04	\$ 0.04	Local/Home Depot		<a href="#">Home Depot</a>
AA3	1/2" Sch 40 PVC Pipe X 3" Lg	Each	1	\$ 0.06	\$ 0.06	Local/Home Depot		<a href="#">Home Depot</a>
AB12	3/4" Sch 40 PVC Pipe X 12" Lg	Each	1	\$ 0.62	\$ 0.62	Local/Home Depot		<a href="#">Home Depot</a>
AAP12.75	1/2" PEX Pipe X 12.75" Lg	Each	1	\$ 1.86	\$ 1.86	Local/Home Depot	1002405017 (5 foot piece)	<a href="#">Home Depot</a>
				Total	\$ 15.36			

## Notes:

1. Glue pipes and fittings using suitable PVC solvent cement for water tight seal.
2. Do not lubricate compression coupling gaskets.
3. Spears brand compression couplings have been tested and are leak proof for this application. Other brands have leaked and are not recommended.

