

## Bill of Materials: Friction Drive Haptic Paddle version 2014

Part #	Name	Qty	Description	Vendor	Part #	Cost/kit
1	3/8" acrylic	1	12"x12"x3/8" sheet of Acrylic	Amazon	B000FPC3F0	\$ 8.00
2	6-32 Machine screw	5	6-32 3/4" Philips machine screw	McMaster	91500A151	\$ 0.61
3	8-32 Machine Screw	8	8-32 3/4" Philips machine screw Flathead	McMaster	91500A197	\$ 1.42
4	8-32 Machine Screw	2	8-32 3/4" Philips machine screw Panhead	McMaster	91735A197	\$ 0.33
5	1/4-20 Machine Screw	2	1/4-20 Round Head Machine Screw	McMaster	91783A542	\$ 0.47
6	1/4-20 Wing Nut	2	1/4-20 Zinc Plated Steel Wing Nut	McMaster	90866A029	\$ 0.21
7	18-8 Set Screw	1	18-8, 1/4" steel mil. Spec. cup point set screw	McMaster	97705A406	\$ 2.73
8	Threaded Insert	1	18-8 stainless steel helical insert .164"	McMaster	91732A359	\$ 0.50
9	Pin Insert	1	18-8 stainless steel slotted spring pin, 1/16" D x 7/16" L	McMaster	92373A108	\$ 0.06
10	Motor Shaft Extension	1	Ultra Machinable 360 Brass 1/4" diameter rod	McMaster	8953K124	\$ 0.33
11	Washer	8	3/8 OD 3/16 ID	McMaster	98019A325	\$ 0.38
12	#10 Lock Washer	1	#10	McMaster	92147A430	\$ 0.03
13	#10 Lock Nut	1	#10 lock nut	McMaster	90532A125	\$ 0.07
14	Precision Shoulder Screw	1	3/16" Shoulder x 1 1/4" long, 8-32 thread	McMaster	93985A209	\$ 3.46
15	Flanged Bearing	2	3/16" ID x 1/2" OD	McMaster	57155K302	\$ 10.00
16	Trantorque Option #1	1	5/8" OD x 1/4" ID x 3/4" LG	Amazon	B001370MO8	\$ 4.50
17	Trantorque Option #2	1	5/8" OD x 1/4" ID x 3/4" LG	McMaster	5926K12	\$ 46.22
18	Neoprene Rubber Friction Drive	1	Adhesive-Back, 1/8" Thick, 12" x 24" 50A Hardness	McMaster	8463K22	\$ 0.54
19	Magnet	1	1/8"D x 1/8"L Nickel plated magnet	Emovendo	M18x18CYL	\$ 0.14
20	Quick Disconnect Terminal	2	Motor Leads	Jameco	489694	\$ 0.58
21	Wire to motors	2	4" 16 AWG (25 ft reel, black or red)	McMaster	8054T16	\$ 1.16
22	SIP Header	1	For connecting to Hall Effect Sensor and Perf Board	Deal Extreme	152192	\$ 1.10
23	Hall Effect Sensor	1	Allegro MICROSYSTEMS A1301EUA-T IC, LINEAR, SIP-3	Newark	31K6635	\$ 1.32
24	Hall Effect Sensor Option #2	1	HONEYWELL S&C SS49E IC, LINEAR, SIP-3	Newark	09J1786	
25	Hall Effect Mount Perf Board	1	Epoxy Glass perf board, 4.5"x6.5", 0.1" spacing	Digikey	V1042-ND	\$ 8.10
26	DC Motor	1	Pittman LOCOG 9434K350 15.1 VDC Brushed Servomotor	EPO (Local)		
27	Power Supply	1	LS150-24 Power Supply TDK-Lambda 24V 6.5A SGL output	Digikey	285-1813-ND	\$ 37.65
28	Servo Amplifier	1	12A8M Brushed PWM Servo Amp	Advanced Motion Controls	RFQ	
<b>Total Cost (excluding motor, amp, power supply):</b>						<b>\$46.04</b>