

## Electrical and Electronic Parts

Passive Components			Semiconductors		
Description/Link to Datasheet	Supplier / Part Number	Location	Description/Link to Datasheet	Supplier / Part Number	Location
<b>Resistors, Carbon Film, 0.25W 5%</b>			<b>Integrated Circuits Op Amps</b>		
Values from 10R to 1M	RP	EIETL, Parts Tray	LM393P, Dual Comparator	RP 82-0272	EIETL, Parts Tray
<b>Capacitors Ceramic , Max Operating Voltage 50Vdc</b>			<b>Integrated Circuits, Logic</b>		
10pf	RP	EIETL, Parts Tray	SN74HC00N, Quad 2-IP NAND Gate	RP 83-0036	EIETL, Parts Tray
100pf	RP	EIETL, Parts Tray	SN74HC02N, Quad 2-IP NOR Gate	RP 51-6275	EIETL, Parts Tray
1nf	RP	EIETL, Parts Tray	SN74HC08E, Quad 2-IP AND Gate	RP 51-6276	Student Kit
10nf	RP	EIETL, Parts Tray	SN74HC32N, Quad 2-IP OR Gate	RP 83-0058	EIETL, Parts Tray
100nf	RP	EIETL, Parts Tray	SN7414N, Hex Schmitt Inverter	RP 83-0050	EIETL, Parts Tray
22pf	RP	EIETL, Parts Tray	SN74HC74N, Dual D Type Flip Flop	RP 51-6278	EIETL, Parts Tray
39pF		Student Kit	SN74HC273, Octal Flip Flop		Student Kit
47pf	RP	EIETL, Parts Tray	<b>Integrated Circuits, I2C</b>		
220pf	RP	EIETL, Parts Tray	PCF8574AN, 8-Channel I/O Expander I2C	RS 9203374	EIETL, Parts Tray
470pf	RP	EIETL, Parts Tray	<b>Integrated Circuits, Timers, Data Conversion</b>		
2.2nf	RP	EIETL, Parts Tray	NE555P, Bipolar Single Timer	RP 82-0336	EIETL, Parts Tray
4.7nf	RP	EIETL, Parts Tray	NE556N, Dual Timer	RP 82-0344	EIETL, Parts Tray
22nf	RP	EIETL, Parts Tray	AD654, Voltage to Frequency Conversion		Student Kit
47nf	RP	EIETL, Parts Tray	<b>Integrated Circuits, PCB Sockets</b>		
220nf	RP	EIETL, Parts Tray	8 Pin	OC 2668402	EIETL, Parts Tray
<b>Capacitors Electrolytic, Max Operating Voltage 16Vdc</b>			14 Pin	OC 2672296	EIETL, Parts Tray
10uF	Rapid 11-0825	EIETL, Parts Tray	16 Pin	OC 2672297	EIETL, Parts Tray
22uF	Rapid 11-0830	EIETL, Parts Tray	<b>Transistors, Mosfet</b>		
47uF	Rapid 11-0835	EIETL, Parts Tray	ZVN3310		Student Kit
100uF	Rapid 11-0875	EIETL, Parts Tray	ZVN4306A, N Channel Mosfet	RP 47-0166	EIETL, Parts Tray
<b>Capacitors Tantalum, Max Operating Voltage 16Vdc</b>			<b>Diodes</b>		
10uF	Rapid 11-1022	EIETL, Parts Tray	1N914		Student Kit
4.7uF	Rapid 11-1018	EIETL, Parts Tray	1N3064		Student Kit
33uF	RP 11-1028	EIETL, Parts Tray	IN4001	RP 50-0381	EIETL, Drawers
22uF	RP 11-1026	EIETL, Parts Tray	<b>Sensors</b>		
<b>Resistors, Cermet Trimmer</b>			<b>Infrared</b>		
500R, Trimmer Pot	RP 68-1968	EIETL, Parts Tray	OPB704 Line Sensor, 3.8 mm Detection Range	OC SCO1254	EIETL, Req. 2 Max
1K, Trimmer Pot	RP 68-1943	EIETL, Parts Tray	GP2Y0A21YK0F Dist. Sensor 80cm	OC 1243869	EIETL, Req. 2 Max
5K, Trimmer Pot		Student Kit	GP2Y0A02YK0F Dist. Sensor 150cm	OC 070891	EIETL, Req. 2 Max
10K, Trimmer Pot	RP 68-1959	EIETL, Parts Tray	TSOP4838 Infrared Receiver 38 kHz	RP 55-0905	EIETL, Req. 2 Max
20K, Trimmer Pot.	RP 68-1947	EIETL, Parts Tray	KTIR0611S Photo Interrupter	RP 58-0942	EIETL, Req. 2 Max
50K, Trimmer Pot.		Student Kit	TSAL6200 5mm 940nm IR Trans. Diode	RP 49-4513	EIETL, Req. 2 Max
<b>Resistors, Variable</b>			SFH313FA Phototransistor	RS 1685379	EIETL, Req. 2 Max
1k	RP 65-0751	EIETL, Req. 2 Max	SFH485P IR Emitter	RP 58-0446	EIETL, Req. 2 Max
4.7k	RP 65-0752	EIETL, Req. 2 Max	QED123, IRLED		Student Kit
10k	RP 65-0753	EIETL, Req. 2 Max	QED123, IR Phototransistor		Student Kit
100k	RP 65-0756	EIETL, Req. 2 Max	<b>Ultrasonic</b>		
<b>Inductors</b>			HC-SR504, Ranging Module	RP 74-1109	EIETL, Req. 2 Max
1µH		Student Kit	<b>Hall Effect</b>		
10µH		Student Kit	AD22151, On Breakout Board		Student Kit
100µH		Student Kit	SS490	OC SN36530	EIETL, Req. 2 Max
1mH		Student Kit	<b>Light Dependant</b>		
10mH		Student Kit	NSL 5112	RP 58-0128	EIETL, Req. 2 Max
<b>Optics</b>			<b>Switches and Buttons</b>		
<b>LEDs 3mm</b>			<b>Switches</b>		
Red	RP 55-1776	EIETL, Parts Tray	Microswitch 22.6mm lever	RP 782404	EIETL, Parts Tray
Yellow	RP 55-1774	EIETL, Parts Tray	<b>Button</b>		
Green	RP 55-1772	EIETL, Parts Tray	Push Button,Red push to make Switch	RP 78-0100	EIETL, Parts Tray
Blue	RP 55-1762	EIETL, Parts Tray	<b>Controller and Motor Drive</b>		
White	RP 55-1766	EIETL, Parts Tray	Arduino Uno Wi-Fi Rev2, Modified		Tool Box 1x supplied as a module, <b>not to be disassembled</b>
Orange	RP 55-0095	EIETL, Parts Tray	Adafruit Motor Shield V2, Modified, 5v Supply		
<b>Mechanical Drive</b>					
<b>Motors</b>					
18RPM 12v 1271-12-43	OC 3999920	Tool Box, 2 Max			
40RPM 12v 1271-12-09	OC 3999932	Tool Box, 2 Max			
Standard Servo MC-410		2 Max per team			
<b>Wheels and Casters</b>					
4" Wheel Vex 276-1497	RP 70-6239	Tool Box, 2 Max			
2.75" Wheel Vex 276-1496 (Modified)	RP 76-6238	Tool Box, 2 Max			
Ball Caster 1/2" Pololu 953	RP 75-0628	1 Max per team			
Ball Caster 3/4" Pololu 995	RP 75-0627				
KEY: RS-Radio Spares, RP-Rapid, OC-Onecall					

# Electrical and Electronic Parts

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<u>Cable Management</u>			<u>Gears</u>		
<b>Connectors</b>			<b>Plain Gears</b>		
Crimp Housing 2-Pole	RP 22-0905	EIETL, Part Bins	10 Tooth	RP 37-0276	EIETL, Part Bins
Crimp Housing 3-Pole	RP 22-0910	EIETL, Part Bins	20 tooth	RP 37-0271	EIETL, Part Bins
Crimp Housing 4-Pole	RP 22-0915	EIETL, Part Bins	30 tooth	37-0266	EIETL, Part Bins
Header Right Angle 2-Pole	RP 22-1005	EIETL, Part Bins	40 Tooth	37-0261	EIETL, Part Bins
Header Right Angle 3-Pole	RP 22-1010	EIETL, Part Bins	<b>Bevel Gears</b>		
Header Right Angle 4-Pole	RP 22-1015	EIETL, Part Bins	12 Tooth Bevel	51-1729	EIETL, Request
Header Straight 2-Pole	RP 22-0950	EIETL, Part Bins	<b>Worm Gears</b>		
Header Straight 3-Pole	RP 22-0955	EIETL, Part Bins	Dia. 12mm, Length 30mm	37-0240	EIETL, Request
Header Straight 4-Pole	RP 22-0960	EIETL, Part Bins	<b>Gear Rack</b>		
Male Header Vertical, Cut to required length	RP 22-0545	EIETL, Part Bins	Length 100mm, Interlock to make longer racks	RP 37-0246	EIETL, Request
Crimp Terminals JYK T2500	RP 22-1098	EIETL, Part Bins	<b>Ladder Chain</b>		
Single Row PCB Sockets – 2 Way	RP 19-0081	EIETL, Part Bins	Link spacing 6mm, 10.5mm width	RP 06-0650	EIETL, Request
Single Row PCB Sockets – 3 Way	RP 19-0082	EIETL, Part Bins	<u>Battery Pack</u>		
Single Row PCB Sockets – 4 Way	RP 19-0083	EIETL, Part Bins			
<b>Cable Ties</b>			Bespoke Battery Pack		
Cable Ties, Various	OC 3382543	EIETL, Part Bins			
Cable Tie Bases	RS 666751	EIETL, Part Bins	<b>Miscellaneous</b>		
<b>Heat Shrink Tube</b>					
Various Colours and Sizes Available	As Required	EIETL, Part Bins			

## Cable

<b>Single Core Equipment Wire 1/0.6, 100m Roll</b>		
Black	RP 01-0601	EIETL, Cable Rack
Brown	RP 01-0604	EIETL, Cable Rack
Red	RP 01-0616	EIETL, Cable Rack
Orange	RP 01-0613	EIETL, Cable Rack
Yellow	RP 01-0620	EIETL, Cable Rack
Green	RP 01-0609	EIETL, Cable Rack
<b>Multi Core Equipment Wire 7/0.2, 500m Roll</b>		
Black	RP 01-0719	EIETL, Cable Rack
Brown	RP 01-0722	EIETL, Cable Rack
Red	RP 01-0728	EIETL, Cable Rack
Orange	RP 01-0726	EIETL, Cable Rack
Yellow	RP 01-0732	EIETL, Cable Rack
Green	RP 01-0723	EIETL, Cable Rack

KEY: RS-Radio Spares, RP-Rapid, OC-Onecall

# Mechanical Parts

Description/Link to Datasheet	Supplier / Part Number	Location	Description/Link to Datasheet	Supplier / Part Number	Location
<a href="#">Screws, Fixings and Adhesives</a>			<a href="#">Sheet, Bar, Rod, Angle ETC</a>		
<b>Scews and Fixings</b>			<b>Sheet</b>		
M2.5 × 12 Skt. head Cap Screws motor mounts		Dyson	Mild steel sheet, 0.7mm thick	450mm×450mm	Dyson
M3/M4/M5/M6 Studding		Dyson	Aluminium sheet, 1.5mm thick	200mm×150mm	Dyson
M3 × 4, 10, 16, 20 Socket Head Cap Screws		Dyson	<b>Rod</b>		
M4 × 10, 16, 20, 25 Socket Head Cap Screws		Dyson	Aluminium rod, 8mm diameter	150mm long	Dyson
M5 × 16, 20, 25 Socket Head Cap Screws		Dyson	Alum. angle, 12.5×12.5×1.6 1 21swg = 0.8mm	600mm Long	Dyson
M6 × 16, 25, 40 Socket Head Cap Screws		Dyson	Steel tube (5/16od × 21swg) 1 18swg = 1.2mm	300mm long	Dyson
No4x25mm Round Head Screws		Dyson	Steel tube (3/8od × 22swg ) 1 16swg = 1.6mm	300mm long	Dyson
No4x25mm Countersunk Screws		Dyson	Aluminium tube, 19mm diameter, 1mm wall	150mm long	Dyson
M3 Nylon nut, bolts and screws		Dyson	<b>Wood Sheet, PLA and Cardboard</b>		
M4 Nylon nut, bolts and screws		Dyson	Polypropylene sheet	300×150×1.5 1	Dyson
M5 Nylon nut, bolts and screws		Dyson	MDF (3mm, 4mm, 6mm) for laser cutting		Dyson
M6 Nylon nut, bolts and screws		Dyson	Plywood (3mm, 4mm, 6mm for laser cutting		Dyson
Pop rivets		Dyson	PLA for 3D printing		Dyson
<b>Adhesives</b>			Cardboard for testing		Dyson
Hot glue		Dyson			
RP Araldite		Dyson			
White Wood Glue		Dyson			
Superglue HV (EIETL		Dyson			