

Part Number	Description	Manufacturer	Quantity	Cost per Item	Total Cost of Quantity	Subsystem Used
LT3120IV#PBF	Switching Voltage Regulators 26V, 9A Low-IQ CC/CV Monolithic Buck-Boost Converter	Analog Devices	1	\$10.04	\$10.04	Charge Controller
LTC4020EUHF#PBF	Battery Management 55V Buck-Boost Multi-Chemistry Battery Charger	Analog Devices	1	\$12.51	\$12.51	Charge Controller
TPS61170DRVR	Switching Voltage Regulators 1.2A Sw Hi Vltg Boost Conv	Texas Instruments	1	\$1.94	\$1.94	Charge Controller
ACS712ELCTR-05B-T	Board Mount Current Sensors For New Designs Use ACS724/5	Allegro MicroSystems	1	\$3.70	\$3.70	Charge Controller
TLV9361QDCKRQ1	Operational Amplifiers - Op Amps Automotive, single, 40-V 10.6-MHz rail-to-rail output operational amplifi	Texas Instruments	1	\$1.51	\$1.51	Charge Controller
G6RN-1-DC5	General Purpose Relays Heavy-Duty SPDT 5VDC	Omron Electronics	2	\$4.10	\$8.20	Charge Controller
SI7272DP-T1-GE3	MOSFET 30V Vds 20V Vgs PowerPAK SO-8	Vishay Semiconductors	4	\$1.43	\$5.72	Charge Controller
NVD5117PLT4G-VF01	MOSFET PFET DPAK 60V 61A 16MOHM	onsemi	2	\$1.97	\$3.94	Charge Controller
SBR0560S1Q-7	Schottky Diodes & Rectifiers SBR Diode	Diodes Incorporated	5	\$0.38	\$1.90	Charge Controller
BZX84C6V2LT116	Zener Diodes BZX84C6V2L is Zener Diode for voltage regulation.	ROHM Semiconductor	2	\$0.24	\$0.48	Charge Controller
RFN10BM3STL	Diodes - General Purpose, Power, Switching 350V Vrm 10A Io Std Fast Rec Diode	ROHM Semiconductor	2	\$1.27	\$2.54	Charge Controller
PA4339.701NLT	Common Mode Chokes / Filters CMC 5.0uH 4A	Pulse Electronics	2	\$1.77	\$3.54	Charge Controller
SRP1245CC-150M	Power Inductors - SMD Ind,13.5x12.5x4.8mm,15uH+/-20%,9A,shd	Bourns	2	\$1.96	\$3.92	Charge Controller
12062A500KAT2A	Multilayer Ceramic Capacitors MLCC - SMD/SMT 200V 50pF COG 1206 10%	KYOCERA AVX	2	\$0.41	\$0.82	Charge Controller
KGM31BCG1H101JT	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50V 100pF COG 1206 5%	KYOCERA AVX	2	\$0.24	\$0.48	Charge Controller
KGM31TCG2H681JU	Multilayer Ceramic Capacitors MLCC - SMD/SMT 500V 680pF COG 1206 5%	KYOCERA AVX	3	\$0.28	\$0.84	Charge Controller
KGM31AR73D102KU	Multilayer Ceramic Capacitors MLCC - SMD/SMT 2000V .001uF X7R 1206 10%	KYOCERA AVX	2	\$0.71	\$1.42	Charge Controller
30LVD40-R	Safety Capacitors .25LS 4000PF 300V 20%	Vishay	2	\$1.66	\$3.32	Charge Controller
KAM31GCG2J103JU	Multilayer Ceramic Capacitors MLCC - SMD/SMT 630V 10,000pF COG 1206 5% AEC-Q200	KYOCERA AVX	2	\$0.99	\$1.98	Charge Controller
KGM31BR71H223JT	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50V .022uF X7R 1206 5%	KYOCERA AVX	2	\$0.31	\$0.62	Charge Controller
C1206C683J5GECAUTO7210	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50V 0.068uF COG 1206 5% AEC-Q200	KEMET	2	\$0.74	\$1.48	Charge Controller
KGM31BR71H104JT	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50V .1uF X7R 1206 5%	KYOCERA AVX	5	\$0.30	\$1.50	Charge Controller
KAF31BR71H224KT	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50V .22uF X7R 1206 10% AEC-Q200 FLEXITERM	KYOCERA AVX	3	\$0.44	\$1.32	Charge Controller
KAM31NR81H334KU	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50V .33uF X8R 1206 10% AEC-Q200	KYOCERA AVX	2	\$0.40	\$0.80	Charge Controller
KGM31HR71E105KU	Multilayer Ceramic Capacitors MLCC - SMD/SMT 25V 1uF X7R 1206 10%	KYOCERA AVX	3	\$0.33	\$0.99	Charge Controller
KAF31GR71E225KU	Multilayer Ceramic Capacitors MLCC - SMD/SMT 25V 2.2uF X7R 1206 10% AEC-Q200 FLEXITERM	KYOCERA AVX	2	\$0.42	\$0.84	Charge Controller
TE1202-E3	Aluminum Electrolytic Capacitors - Axial Leaded 25V 5uF	Vishay	4	\$4.25	\$17.00	Charge Controller
870575873001	Aluminum Organic Polymer Capacitors WCAP-HTG5 63V 10uF 20% THT Radial -55/+105C	Würth Elektronik	5	\$1.33	\$6.65	Charge Controller
C3216X5R1V156M160AC	Multilayer Ceramic Capacitors MLCC - SMD/SMT 1206 35V 15uF X5R 20% T: 1.6mm	TDK	3	\$0.89	\$2.67	Charge Controller
C3216X5R0J686M160AB	Multilayer Ceramic Capacitors MLCC - SMD/SMT 1206 6.3V 68uF X5R 20% T: 1.6mm	TDK	2	\$0.78	\$1.56	Charge Controller
87057574002	Aluminum Organic Polymer Capacitors WCAP-HTG5 25V 150uF 20% THT Radial -55/+105C	Würth Elektronik	2	\$1.81	\$3.62	Charge Controller
WSL2512R0140FEA18	Current Sense Resistors - SMD 2watts .014ohm 1%	Vishay / Dale	4	\$1.11	\$4.44	Charge Controller
SFR18EZPF1000	Thick Film Resistors - SMD Sulfur Tolerant Chip Resistor	ROHM Semiconductor	3	\$0.26	\$0.78	Charge Controller
CCF073K60JKE36	Metal Film Resistors - Through Hole CCF-07 3.6K 5% T-1 E36 e3	Vishay / Dale	2	\$0.30	\$0.60	Charge Controller
ROX7J10K	Metal Oxide Resistors 7W STD M/OX 5% 10K	TE Connectivity / Holsworthy	7	\$1.04	\$7.28	Charge Controller
ERA-8AEB1402V	Thin Film Resistors - SMD 1206 14Kohm 25ppm 0.1% AEC-Q200	Panasonic	2	\$0.59	\$1.18	Charge Controller
MFR-12FTF52-17K	Metal Film Resistors - Through Hole	YAGEO	2	\$0.10	\$0.20	Charge Controller
3503G2B20KFTDF	Thin Film Resistors - SMD 3503G 2B 20K 1% 1K RL	TE Connectivity / Holsworthy	3	\$1.67	\$5.01	Charge Controller
CRCW251230K0JNEG	Thick Film Resistors - SMD 1watt 30Kohms 5%	Vishay / Dale	2	\$0.32	\$0.64	Charge Controller
ROX7J33K	Metal Oxide Resistors 7W STD M/OX 5% 33K	TE Connectivity / Holsworthy	3	\$1.33	\$3.99	Charge Controller
CCF5576K8FKE36	Metal Film Resistors - Through Hole 1/4watt 76.8Kohms 1% Rated to 1/2watt	Vishay / Dale	2	\$0.30	\$0.60	Charge Controller
ROX9J100K	Metal Oxide Resistors 9W STD M/OX 5% 100K	TE Connectivity / Holsworthy	5	\$1.30	\$6.50	Charge Controller
ERA-8KEB1203V	Thin Film Resistors - SMD 1206 Thin film res high stability type	Panasonic	2	\$0.82	\$1.64	Charge Controller
CRCW2512140KFKEG	Thick Film Resistors - SMD 1 watt 140Kohms 1% 100ppm	Vishay / Dale	2	\$0.34	\$0.68	Charge Controller
ERA-8KEB2703V	Thin Film Resistors - SMD 1206 Thin film res high stability type	Panasonic	2	\$0.82	\$1.64	Charge Controller
CRCW2512620KJNEG	Thick Film Resistors - SMD 620K OHM 5%	Vishay / Dale	2	\$0.36	\$0.72	Charge Controller
RCV12062M00FKEAAT	Thick Film Resistors - SMD RCV1206-AT 100 2M0 1% ET1 E3	Vishay	2	\$0.35	\$0.70	Charge Controller
	TE Connectivity, Buchanan 2.54mm Pitch, 2 Way PCB Terminal Strip	TE Connectivity	12	\$1.41	\$16.92	Charge Controller
ESP32-DEVKITC-32E	ESP32-WROOM-32E 4MB FLASH	Espressif Systems	2	\$10.00	\$20.00	Data Management
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3072	RFM95W LORA RADIO TRANSCEIVER BR	Adafruit Industries LLC	2	\$19.95	\$39.90	Data Management
IPXSM66AL (I-PEX P/N 2027: I-PEX (MHF1) SMD RECEPTACLE		Lighthouse Technologies, Inc	2	\$0.75	\$1.50	Data Management
TY-CSA23	915MHz LoRa Antenna Omni 5dbi SMA Male + 15cm IPEX Extension Cable 2 Pcs	Tenmory	1	\$13.99	\$13.99	Data Management
N/A, Seeed Studio SKU: 110!	Long Range Indoor Antenna Kit; 860-930MHz; 3dBi; 295mm	Seeed Studio	1	\$14.90	\$14.90	Data Management
N/A, ASIN: B07T85B3LN	Tenmory UFL to SMA Mini PCI U.FL to RP-SMA Female Ipex Connector Pigtail Antenna Extension Cable (6	Tenmory	1	\$5.99	\$5.99	Data Management
N/A, Seeed Studio SKU: 113: WM1302 Raspberry Pi Hat		Seeed Studio	1	\$19.90	\$19.90	Data Management
WM1302-USB-US915-M	WM1302 LoRaWAN Gateway Module (USB) - US915	Seeed Studio	1	\$29.00	\$29.00	Data Management

SDSQUA4-064G-GN6MA	SanDisk 64GB Ultra microSDHC	SanDisk	1	\$9.81	\$9.81	Data Management
ASIN: B07TC2BK1X, Model #	Raspberry Pi 4 Model B 2019 (4GB)	Raspberry Pi Foundation	1	\$61.49	\$61.49	Data Management
ASIN: B07TYQRXTK	CanaKit 3.5A Raspberry Pi 4 Power Supply (USB-C)	CanaKit	1	\$9.99	\$9.99	Data Management
ASIN: B00507GV38, Model #	Monoprice 6inch HDMI Micro Connector male to HDMI Connector female - Black	Monoprice	1	\$4.98	\$4.98	Data Management
94-200-060 BK	60 ft. Electrical Tape	Duck Brand	1	\$1.23	\$1.23	Inductive Loop
1265013	20 yd Duck Tape Yellow	Duck Brand	1	\$3.94	\$3.94	Inductive Loop
14 AWG Wire	14 AWG Wire to	N/A	485 ft	\$0.00	0	Inductive Loop
R82DC3220AA60K	CAPACITOR	KEMET	2	\$0.30	\$0.60	Loop Controller
K104K10X7RF53L2	Capacitor	Vishay/BC Components	4	\$0.17	\$0.68	Loop Controller
UVR1H102MHD	Polarized Capacitor	Nichicon	12	\$0.98	\$11.76	Loop Controller
MFR-25FTF52-100K	Resistor	YAGEO	4	\$0.10	\$0.40	Loop Controller
MFR-25FTF52-100R	Resistor	YAGEO	8	\$0.10	\$0.80	Loop Controller
CF14JT220R	Resistor	Stackpole Electronics Inc.	4	\$0.10	\$0.40	Loop Controller
2N3904	NPN Transistor	Diotec Semiconductor	4	\$0.13	\$0.52	Loop Controller
B82731T2301A020	Inductor	EPCOS/TDK	2	\$2.72	\$5.44	Loop Controller
C322C106K3R5TA	Capacitor	KEMET	4	\$0.79	\$3.16	Loop Controller
MFR-25FTE52-33K	Resistor	YAGEO	4	\$0.10	\$0.40	Loop Controller
MFR-25FTF52-10K	Resistor	YAGEO	16	\$0.10	\$1.60	Loop Controller
MFR-25FRF52-3K3	Resistor	YAGEO	4	\$0.10	\$0.40	Loop Controller
MFR-25FTE52-330K	Resistor	YAGEO	4	\$0.10	\$0.40	Loop Controller
LT1720CS8#PBF	Comparator	Analog Devices Inc.	2	\$10.24	\$20.48	Loop Controller
1711026	Phoenix Fixed Terminal Block	Phoenix Contact	2	\$2.02	\$4.04	Loop Controller
1905201	Phoenix Fixed Terminal Block	Phoenix Contact	2	\$4.55	\$9.10	Loop Controller
L78L33ABZ-AP	Linear Voltage Regulator	STMicroelectronics	2	\$0.36	\$0.72	Loop Controller
	PCB Board	JLCPCB	5		\$0.00	Loop Controller
LTC3621IMS8E#PBF	Step down buck regulator : Conv DC-DC 2.7V to 17V Synchronous Step Down Single-Out 0.6V to 17V 1A Au	Analog Devices	3	\$8.12	\$24.36	Power Controller
ERJ-1GNF1963C	Resistor 196k : Thick Film Chip Resistor, 0201, 0.05W	Panasonic	3	\$0.10	\$0.30	Power Controller
ERJ-1GNF2402C	Resistor 24k : PANASONIC ELECTRONIC COMPONENTS - ERJ1GNF2402C - RES, THICK FILM, 24K, 1%, 0.05W	Panasonic	3	\$0.10	\$0.30	Power Controller
ERJ-1GNF1402C	Resistor 14k : PANASONIC - ERJ1GNF1402C - SMD Chip Resistor, 0201 [0603 Metric], 14 kohm, ERJ1GN Seri	Panasonic	3	\$0.10	\$0.30	Power Controller
XFL3012-153MEC	Inductor 15uH : Power Inductors - SMD 15Uh Shld 1A 483mOhms AECQ2	Coilcraft	2	\$2.08	\$4.16	Power Controller
MSS7348-683MEC	Inductor 68uH : Fixed Inductors 68uH Shld 20% 1.2A 225mOhms	Coilcraft	1	\$2.62	\$2.62	Power Controller
C3216CH2J221J060AA	Capacitor 22pF : MULTILAYER CERAMIC CHIP CAPACITORS, 3216, Commercial grade, general (Up to 75V)	TDK	3	\$0.21	\$0.63	Power Controller
C3216X8R1E105M160AA	Capacitor 1uF : MULTILAYER CERAMIC CHIP CAPACITORS, 3216, Commercial grade, general (Up to 75V)	TDK	3	\$0.42	\$1.26	Power Controller
C3216JB1E106M160AB	Capacitor 10uF : MULTILAYER CERAMIC CHIP CAPACITORS, 3216, Commercial grade, general (Up to 75V)	TDK	3	\$0.56	\$1.68	Power Controller
C3216JB1C226M160AB	Capacitor 22uF : MULTILAYER CERAMIC CHIP CAPACITORS, 3216, Commercial grade, general (Up to 75V)	TDK	3	\$0.64	\$1.92	Power Controller
282834-2	TE Connectivity, Buchanan 2.54mm Pitch, 2 Way PCB Terminal Strip	TE Connectivity	4	\$1.41	\$5.64	Power Controller
NPA305-12I	Newpowa 98B 30W 12V Solar Panel High-Efficiency Monocrystalline 12V PV Module Designed for 12V Off (Newpowa	1	\$44.79	\$44.79	Solar Power
ML12-12	ML12-12F2 - 12 Volt 12 AH F2 Terminal Rechargeable SLA AGM Battery	Mighty Max Battery	2	\$27.99	\$55.98	Solar Power
B01CWYFS4Y	10 Pairs Red Ultra T Plug Connectors Deans Style For RC LiPo Battery Male and Female + (20 Pack) Shrink T	WST	1	\$7.29	\$7.29	Solar Power
B08CZ7Z9TB	Adapter Power Supply"12V 3A Adapter Power Supply AC to DC Plug"	LitStar	1	\$9.99	\$9.99	Wall Power
LTC3621	Step down "Buck Converter"	Analog Devices	2	\$8.12	\$16.24	Wall Power
EXP1218	Battery: xpert Power Sealed Lead Acid Batteries	ExpertPower	1	\$34.40	\$34.40	Wall Power
G6RN-1-DC5	Switch: General Purpose Relays Heavy-Duty SPDT 5VDC	Omron Electronics	1	\$4.10	\$4.10	Wall Power
XFL3012-153MEC	Inductor 15uH Power Inductors SMD 15Uh Shld 1A 483mOhms AECQ2	Coilcraft	1	\$2.08	\$2.08	Wall Power
MSS7348-683MEC	Inductor 68uH :Power Inductors SMD 68uH Shld 20% 1.2A 225mOhms	Coilcraft	1	\$2.62	\$2.62	Wall Power
CRGH2512J82K	resistor 82k: Thick Film Resistors - SMD CRGH2512 5% 82K 2W	pansonic	1	\$0.65	\$0.65	Wall Power
CRGH2512J82K	resistor 10k:Thick Film Resistors - SMD CRG0603 5% 10K	pansonic	1	\$0.65	\$0.65	Wall Power
ERJ-P08F9532V	resistor 95.3k:Thick Film Resistors SMD 0201 95.3Kohm 1% HalogenFree AEC-Q2000.66W 1% AEC-Q200	pansonic	1	\$0.28	\$0.28	Wall Power
35216K8FT	resistor 6.8k: Thick Film Resistors SMD 3521 6K8 1% 2W	TE Connectivity Holsworthy	1	\$0.51	\$0.51	Wall Power
C2220C204KBG LCAUTO	capacitor 200uF: Multilayer Ceramic Capacitors MLCC - SMD/SMT 630Vo 0.2uF 2220 COG w/KONNEKT AECQ2	KEMET	1	\$4.37	\$4.37	Wall Power
C3216JB1E106 M160AB	capacitor 10uF: Multilayer Ceramic Capacitors MLCC - SMD/SMT RECOMMENDED ALT 810-C3216X5R1E106K	TDK	2	\$0.59	\$1.18	Wall Power
KAM15AR72 A103KM	capacitor 10nF: Multilayer Ceramic Capacitors MLCC SMD/SMT 100V 10,000pF X7R 0603 10% AECQ200	KYOCERA AVX	1	\$0.31	\$0.31	Wall Power

C3216X8R1E105M1 60AA	capacitor 1uF: Multilayer Ceramic Capacitors MLCC SMD/SMT RECOMMENDED ALT 810-C3216X8R1E105K TDK	2	\$0.42	\$0.84	Wall Power
C3216CH2J221J06 0AA	capacitor 22pF: Multilayer Ceramic Capacitors MLCC - SMD/SMT RECOMMENDED ALT 810-C3216C0G2J221J TDK	2	\$0.23	\$0.46	Wall Power
C3216JB1C226M16 0AB	capacitor 22uF:Multilayer Ceramic Capacitors MLCC SMD/SMT RECOMMENDED ALT 810-C3216X5R1C226M TDK	2	\$0.86	\$1.72	Wall Power
Total		289		\$690.52	