RELAY-6 six-pad wireless launcher

Bill of materials: pad box, controller core, HALO / FLIGHTDECK / MONOLITH panels

Revision: A **Date:** 2026-11-18 **Lines:** 90 **Source:** Build guide Rev A, sections 4–6; drawings E-1 to E-6, P-1 to P-9

Prices are what each supplier's page showed on 2026-11-18, one unit, before tax and shipping. 'est.' is an allowance, not a quote; '(listing)' was read from a search result. The core group is bought once per controller.

Tick **Ord** when ordered, **Have** when it is in hand and checked against the part number, **Fit** when it is installed. Write the vendor, order number and price on the last page. Alternates for obsolete (EOL) parts are in **bold**.

EOL The original part is no longer made: buy the current equivalent listed. **Same** Standard part: any equivalent works. **Choice** A builder's choice: the listed part is the one drawn.

Spec The spec matters: match it or recheck the drawing and hole size.

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
Controller core (one per controller) Subtotal ≈ $287 (of which optional $87)										
☐	☐	☐	**1**	U1	**Heltec WiFi LoRa 32 V3, 915 MHz, no shell** ESP32-S3 + SX1262; LoRa on IPEX; 1S Li-ion charger on board	ZC-153-2-915	LilyGO T3-S3 SX1262 915 MHz (H598) $17.12, lilygo.cc	Heltec heltec.org/project/wifi-lora-32-v3/	**Choice**	$17.90
☐	☐	☐	**1**	DS1	**OLED 3.12″ 256×64, SSD1322, 4-wire SPI** ER-OLEDM032-1, choose colour (blue/white/yellow/green) and the 4-wire SPI header option (+$0.59)	ER-OLEDM032-1	Newhaven NHD-3.12-25664UCY2 $38.17, Digi-Key	BuyDisplay www.buydisplay.com/blue-3-2-inch-arduino-ras…	**Choice**	$20.84 · Visual area 78.78 × 21.18; outline 100.50 × 33.50
☐	☐	☐	**1**	U6	**GNSS breakout, u-blox MAX-M10S** UART/I²C; needs an active GPS antenna on its SMA	SparkFun GPS-18037	SEQURE M10-18 mini GPS with patch antenna, $22.99 (listing), Amazon B0D7Q2ZS8Q	SparkFun www.sparkfun.com/sparkfun-gnss-receiver-brea…	**Choice**	$45.95 · Optional: GPS only feeds the flight log · optional
☐	☐	☐	**1**		**Active GPS antenna, SMA** for the MAX-M10S			any	**Choice**	$12.00 · est. — not priced · optional
☐	☐	☐	**1**	U5	**NFC reader PN532** I²C; RSO card arming	Elechouse PN532 V4	HiLetgo PN532 V3 $8.99 (listing), Amazon B01I1J17LC	Elechouse www.elechouse.com/shop/	**Choice**	$23.90 · Optional: RSO card arming · optional
☐	☐	☐	**10**		**NFC cards NTAG215** CR80 PVC	GoToTags JKYLMEQ2VG	20-pack $7.99 (listing), Amazon B075CL5HGP	GoToTags store.gototags.com/nfc-pvc-card-ntag215/	**Same**	$0.48 × 10 = $4.80 · Minimum order 10 · optional
☐	☐	☐	**1**	U4	**I²S class-D amp MAX98357A** 3 W mono	Adafruit 3006		Adafruit www.adafruit.com/product/3006	**Same**	$5.95
☐	☐	☐	**1**	LS1	**Speaker 40 mm 4 Ω 3 W** 2-pack (one spare)	Gikfun B01LN8ONG4	Adafruit 3968 (out of stock)	Amazon www.amazon.com/dp/B01LN8ONG4	**Same**	$9.28
☐	☐	☐	**1**	ENC	**Rotary encoder with push switch** 24 PPR, detent, 6 mm D shaft, 20 mm	Bourns PEC11R-4220F-S0024	PEC11R-4215F-S0024 (15 mm shaft) $2.95	Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$2.69

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
☐	☐	☐	**1**	ENC	**Knob, knurled aluminium, black** 23.5 mm × 15.9, 6 mm bore	`Kilo OEJNI-90-4-7`	Adafruit 5527 (20 mm) $2.95	Digi-Key www.digikey.com/en/products/result?keywords=…	**Choice**	$12.93
☐	☐	☐	**1**	S1	**Key switch, 2-position** 19.30 mm cutout; key removable in one position (confirm it is OFF on the data sheet)	`C&K Y101132C203NQ`	Schneider XB5AG21 22 mm, $90.41	Digi-Key www.digikey.com/en/products/result?keywords=…	**Spec**	$25.16 · Spare key C&K 115140126, $4.32
☐	☐	☐	**1**	S2	**E-stop, 22 mm mushroom, 1 NC** push to latch, twist to release	`APIELE XB2-01ZS style`	IDEC XW1E-BV401MFR $49.17 (27-week lead)	Amazon www.amazon.com/dp/B079FKJG26	**Choice**	$9.99
☐	☐	☐	**2**	BT1	**Li-ion cell 18650, Molicel P28A** 2800 mAh, 35 A	`Molicel P28A`	IMR Batteries P28A $5.99	18650BatteryStore www.18650batterystore.com/products/molicel-p…	**Same**	$5.99 × 2 = $11.98
☐	☐	☐	**2**	BT1	**18650 holder, PCB** one cell each; wire the two in parallel (1S2P)	`Keystone 1043P`		Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$3.37 × 2 = $6.74
☐	☐	☐	**1**	U7	**USB-C Li-ion charger, bq24074** 1.0 A charge as shipped; load sharing	`Adafruit 4755`		Adafruit www.adafruit.com/product/4755	**Same**	$14.95
☐	☐	☐	**1**	U8	**5 V step-up regulator** 1.3–5 V in, 5 V out	`Pololu U3V40F5 (#4012)`	Pololu S13V20F5 $17.95	Pololu www.pololu.com/product/4012	**Same**	$9.95
☐	☐	☐	**1**	ANT	**Antenna 915 MHz tilt whip, SMA** 3 dBi, 903–928 MHz	`Abracon AEACAC195013-S915`	TE Linx ANT-916-CW-HW-SMA $11.20	Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$14.72
☐	☐	☐	**1**	ANT	**u.FL to SMA bulkhead cable** 15 cm RG178	`Adafruit 851`		Adafruit www.adafruit.com/product/851	**Spec**	$3.95 · Check the SMA gender matches the antenna
☐	☐	☐	**1**	J1	**USB-C round panel-mount extension** fits 12–18 mm hole	`Adafruit 6069`	Adafruit 4218 (21.5–27 mm hole) $9.95	Adafruit www.adafruit.com/product/6069	**Same**	$4.50
☐	☐	☐	**1**		**Perma-Proto full-size board** 157 × 51 mm	`Adafruit 1606`		Adafruit www.adafruit.com/product/1606	**Same**	$10.95
☐	☐	☐	**1**	U9	**Level shifter 74AHCT125** 3.3 V → 5 V for the WS2812 data line	`Adafruit 1787`	SN74AHCT125N, any distributor	Adafruit www.adafruit.com/product/1787	**Same**	$1.50 · est. — price not confirmed
☐	☐	☐	**1**	U10	**I/O expander MCP23017** I²C: pad keys/toggles, MODE, encoder push	`MCP23017-E/SP`		Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$1.60 · est. — price not confirmed
☐	☐	☐	**1**		**Wire, headers, standoffs, 1000 µF, resistors** allowance			any	**Choice**	$15.00 · est.

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
HALO panel parts Subtotal ≈ $142										
☐	☐	☐	**1**		**Case, Apache 3800 (black)** inside 14-7/8 × 10-5/8 × 6-1/8 in	`Harbor Freight 63927`	Pelican 1450 $169.95	Harbor Freight www.harborfreight.com/3800-weatherproof-prot…	**Choice**	$39.99 · Measure inside before cutting (Stage 0)
☐	☐	☐	**6**	PB1–PB6	**Arcade button 30 mm, translucent clear** 30 mm hole	`Adafruit 3491`		Adafruit www.adafruit.com/product/3491	**Same**	$2.50 × 6 = $15.00
☐	☐	☐	**2**	PB1–PB6	**NeoPixel mini button PCB, pack of 5** one inside each pad key	`Adafruit 1612`		Adafruit www.adafruit.com/product/1612	**Same**	$4.95 × 2 = $9.90
☐	☐	☐	**1**	PB7	**Arcade button 60 mm, red, LED** FIRE; hole size from the maker's drawing (CHECK)	`Adafruit 1190`	Adafruit 1185 (100 mm) $9.95	Adafruit www.adafruit.com/product/1190	**Spec**	$5.95
☐	☐	☐	**1**	SW1	**Microswitch, lever** cover-open sense	`Omron D2F-L`	D2F-FL $2.15	Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$2.55
☐	☐	☐	**1**	P-3	**Clear cast acrylic 1/4 in, 12 × 12 in, 2-pack** halo ring (6 mm)	`Amazon B0H33BKNLR`		Amazon www.amazon.com/dp/B0H33BKNLR	**Choice**	$14.99
☐	☐	☐	**1**		**WS2812B strip 60/m, 1 m** ≈46 LEDs for the ring	`BTF-LIGHTING B01CDTE9UC`	Adafruit 2508 (out of stock)	Amazon www.amazon.com/dp/B01CDTE9UC	**Same**	$8.99
☐	☐	☐	**1**	P-1–P-3	**Laser-cut panels (P-1, P-2, P-3 cover and blocks)** 3 mm black + 3 mm clear cast acrylic	`SendCutSend`	Any laser service or a local makerspace	SendCutSend sendcutsend.com/materials/	**Choice**	$45.00 · est. — upload the DXFs for a quote
FLIGHTDECK panel parts Subtotal ≈ $239										
☐	☐	☐	**1**		**Case, Apache 3800 (orange)** inside 14-7/8 × 10-5/8 × 6-1/8 in	`Harbor Freight 56766`	Pelican 1450 $169.95	Harbor Freight www.harborfreight.com/3800-weatherproof-prot…	**Choice**	$39.99
☐	☐	☐	**6**	T1–T6	**Toggle switch SPST, IP56** 12.2 mm hole, 15/32-32 bushing	`CW Industries GTS447A101HR`	SparkFun COM-11310 illuminated toggle + cover $4.75	Digi-Key www.digikey.com/en/products/result?keywords=…	**Choice**	$6.87 × 6 = $41.22 · $5.93 each at 10
☐	☐	☐	**6**	T1–T6	**Safety flip cover, red** fits GTS series	`CW Industries GT-4R`		Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$5.72 × 6 = $34.32 · $5.18 each at 10
☐	☐	☐	**1**	B1–B6	**WS2812B strip 60/m, 1 m** cut six 8-LED status bars	`BTF-LIGHTING B01CDTE9UC`	Adafruit NeoPixel Stick 1426 $5.95 each (out of stock)	Amazon www.amazon.com/dp/B01CDTE9UC	**Same**	$8.99
☐	☐	☐	**1**	PB1	**Arcade button 60 mm, green, LED** ARM	`Adafruit 1193`		Adafruit www.adafruit.com/product/1193	**Spec**	$5.95 · hole: CHECK

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
☐	☐	☐	**1**	PB2	**Arcade button 60 mm, red, LED** FIRE	`Adafruit 1190`		Adafruit www.adafruit.com/product/1190	**Spec**	$5.95 · hole: CHECK
☐	☐	☐	**1**	P-4	**Aluminium panel, laser cut + powder coat** 3.18 mm 5052-H32 (P-4)	`SendCutSend`	3 mm black acrylic (as HALO) about $25	SendCutSend sendcutsend.com/materials/	**Choice**	$70.00 · est. — quote needed
☐	☐	☐	**1**	P-5	**Lid insert + checklist window** 3 mm black + 3 mm clear acrylic (P-5)	`SendCutSend`		SendCutSend sendcutsend.com/materials/	**Choice**	$25.00 · est.
☐	☐	☐	**1**		**Hazard-stripe vinyl tape, 2 in** fire-zone border			any	**Choice**	$8.00 · est.

MONOLITH panel parts Subtotal ≈ $211

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
☐	☐	☐	**1**		**Case, Apache 3800 (black)** inside 14-7/8 × 10-5/8 × 6-1/8 in	`Harbor Freight 63927`		Harbor Freight www.harborfreight.com/3800-weatherproof-prot…	**Choice**	$39.99
☐	☐	☐	**6**	RV1–RV6	**Slide potentiometer 60 mm, 10 kΩ linear** body 75 × 9 × 6.5	`Bourns PTA6043-2015DPB103`	Same Sky PTNS2-6015M-B10 $2.02	Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$2.23 × 6 = $13.38 · $1.86 each at 10
☐	☐	☐	**1**	RV1–RV6	**Fader caps, 10-pack** plastic; machine aluminium caps later	`uxcell B07W78R9M3`		Amazon www.amazon.com/dp/B07W78R9M3	**Spec**	$6.49 · (listing) — check the lever size first
☐	☐	☐	**2**	U10	**ADS1115 16-bit ADC breakout** reads the six levers (4 + 2)	`Adafruit 1085`		Adafruit www.adafruit.com/product/1085	**Same**	$14.95 × 2 = $29.90
☐	☐	☐	**1**	PB1	**Pushbutton 30 mm stainless, blue LED, IP67** fire core; LED is 12 V (dim at 5 V, or add a small boost)	`Amazon B095WRSWG8`	Amazon B095PFQG77 $23.99	Amazon www.amazon.com/dp/B095WRSWG8	**Spec**	$21.99
☐	☐	☐	**1**		**Bearing 6810-2RS, 50 × 65 × 7** twist collar	`uxcell B082PXZLJT (2-pack)`	VXB 6810-2RS $24.99	Amazon www.amazon.com/dp/B082PXZLJT	**Same**	$9.79 · (listing)
☐	☐	☐	**1**	DS2	**Second OLED (same as DS1)** twin strip	`ER-OLEDM032-1`		BuyDisplay www.buydisplay.com/blue-3-2-inch-arduino-ras…	**Same**	$20.84
☐	☐	☐	**1**		**WS2812B strip 60/m, 1 m** lever slots + columns	`BTF-LIGHTING B01CDTE9UC`		Amazon www.amazon.com/dp/B01CDTE9UC	**Same**	$8.99
☐	☐	☐	**1**	P-6, P-7	**Panels: 2 × 3 mm black acrylic (laminated), lid insert** P-6, P-7	`SendCutSend`	6.9 mm Delrin, CNC routed (colour not confirmed)	SendCutSend sendcutsend.com/materials/	**Choice**	$55.00 · est.

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
☐	☐	☐	**1**		**Printed collar, cam and housing** PETG, 3D printed			any	**Choice**	$5.00 · est.

RELAY-6 pad box

Subtotal ≈ $632 (of which optional $10)

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
☐	☐	☐	**1**	U1	**Heltec WiFi LoRa 32 V3, 915 MHz, no shell** ESP32-S3 + SX1262	ZC-153-2-915	LilyGO T3-S3 V1.3 SX1262 $15.31 (China) / $19.81 (US)	Heltec heltec.org/project/wifi-lora-32-v3/	**Choice**	$17.90
☐	☐	☐	**10**	Q1–Q8	**N-MOSFET 40 V, IRLB3034 type, TO-220** 1.7 mΩ max at 10 V (IRLB3034 data); Q1–Q8 + 2 spares	UMW UMWIRLB3034	**Infineon IPP015N04NF2SAKMA1 $3.40 (not logic-level; fine with the 12 V gate drive). Infineon IRLB3034PBF is obsolete**	Digi-Key www.digikey.com/en/products/result?keywords=…	**EOL**	$1.68 × 10 = $16.80 · $1.68 each at 10 · the Infineon original is no longer made
☐	☐	☐	**4**	U4–U7	**Gate driver, dual, non-inverting** TC4427A, DIP-8; three for the pads, one for K1	TC4427AEPA	TC4427CPA $1.78	Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$1.78 × 4 = $7.12
☐	☐	☐	**1**	K1	**Relay 12 V SPDT, 5-pin, with sockets, 5-pack** NO 40 A / NC 30 A at 14 V; 30 / 87 / 87a	Nilight 50003R	Bosch 0 332 209 150 is only 20/30 A	Amazon www.amazon.com/dp/B0748F1JK4	**Spec**	$13.50 · 4 spares in the pack
☐	☐	☐	**2**	ADC1, ADC2	**ADC 16-bit, 4-channel, ADS1115** TEST + six PAD−n + WIND	Adafruit 1085		Adafruit www.adafruit.com/product/1085	**Same**	$14.95 × 2 = $29.90
☐	☐	☐	**1**	U8	**Current/voltage monitor INA228 breakout** reads RS1 and the battery voltage	Adafruit INA228	INA226 breakout	Adafruit www.adafruit.com/search?q=INA228	**Same**	$15.00 · est. — price not confirmed
☐	☐	☐	**1**	RS1	**Shunt 50 A / 75 mV** Kelvin terminals			any	**Choice**	$10.00 · est. — not priced
☐	☐	☐	**1**	U2	**Retriggerable monostable, CD74HC123E** DIP-16; one half used as the watchdog	CD74HC123E	SN74LVC1G123DCUR (VSSOP-8, needs an adapter) $1.67	Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$0.99
☐	☐	☐	**1**	U3	**Quad AND gate, 74HC08** DIP-14; one gate used	SN74HC08N		Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$0.60 · est. — price not confirmed
☐	☐	☐	**1**	U9	**Level shifter 74AHCT125** beacon data	SN74AHCT125N	Adafruit 1787	Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$0.70 · est. — price not confirmed
☐	☐	☐	**1**	F1–F6	**Fuse block, 6 circuits + negative bus** ATO/ATC, 30 A per circuit, 100 A block	Blue Sea Systems 5025	12-circuit version $45.03	Amazon www.amazon.com/dp/B000THQ0CQ	**Choice**	$35.10

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
☐	☐	☐	**10**	F1–F6	**Fuse ATO 15 A** 32 V DC; six fitted, four spares	`Littelfuse 0287015.PXCN`		Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$0.33 × 10 = $3.30 · $0.33 each at 10
☐	☐	☐	**1**	F0	**Inline ATC fuse holder 10 AWG, 4-pack with 40 A fuses** main fuse F0	`Amazon B08BWRSPY1`	Littelfuse FHAC0001ZXJ is 20 A max: not for F0	Amazon www.amazon.com/dp/B08BWRSPY1	**Spec**	$9.99
☐	☐	☐	**1**	BT1	**Battery 12 V sealed lead-acid 7.2 Ah** ≈151 × 65 × 94 mm, F2 terminals; high pulse current	`12 V 7.2 Ah SLA (any make)`	$LiFePO_4$ only with a ≥ 40 A pulse BMS. ExpertPower 10 Ah $LiFePO_4$ ($69.99) has a 10 A / 15 A-for-10 s BMS: too small for salvos	any	**Spec**	$25.00 · est. — price not confirmed
☐	☐	☐	**1**		**Charger, 12 V lead-acid smart charger 1–2 A** with S1 off		Powerwerx CRG-14.6-4A $24.99 if you fit $LiFePO_4$	any	**Choice**	$30.00 · est. — price not confirmed
☐	☐	☐	**1**	U1 supply	**Buck regulator 5 V 1 A** 5.1–36 V in	`Pololu D24V10F5 (#2831)`	Pololu D36V28F5 $23.95	Pololu www.pololu.com/product/2831	**Same**	$13.95
☐	☐	☐	**1**	J1–J6, charge	**Anderson Powerpole 30 A, 25 sets** one set = one red + one black housing; 7 pairs need 14 sets	`Powerwerx PP30-25`	10 sets $12.99	Powerwerx powerwerx.com/anderson-powerpole-connectors-…	**Same**	$27.99
☐	☐	☐	**6**	J1–J6	**Powerpole panel clamp pair** fixes each pair to the front face (P-8)	`Powerwerx 1462G1`	PanelPole2 housing $19.99	Powerwerx powerwerx.com/search?q=powerpole%20distribut…	**Spec**	$4.40 × 6 = $26.40 · (listing) — CHECK the cut-out against P-8
☐	☐	☐	**1**	leads	**Alligator clips, Mueller BU-60, 50 pcs** 12 used	`Mueller BU-60`	BU-60C, 10 pcs $23.62	Amazon www.amazon.com/dp/B00LPPG4ZY	**Same**	$32.30
☐	☐	☐	**1**	leads	**Zip cord 16 AWG red/black, 50 ft** bare copper (not CCA)	`Powerwerx Wire-RB-16-50`	Amazon 16 AWG $11.99 is CCA: avoid	Powerwerx powerwerx.com/red-black-zip-cord-16-awg-50-ft	**Spec**	$21.89
☐	☐	☐	**1**		**Ammo can .50 cal, steel, gasketed** inside ≈ 11 × 5.5 × 7 in (typical M2A1; measure)	`Fortress (Amazon B01LYVW7DQ)`	HARDROCK gasketed can $35.99; Apache 2800 $29.99	Amazon www.amazon.com/dp/B01LYVW7DQ	**Choice**	$29.69
☐	☐	☐	**1**	S2	**Key switch, key removable in one position** 19.30 mm; 4 A at 28 V DC (coil current ≈ 0.15 A)	`C&K Y101132C203NQ`	C&K YM06132C205NQ (SPST) $33.68; E-Switch KO106A102 releases in all positions: not suitable	Digi-Key www.digikey.com/en/products/result?keywords=…	**Spec**	$25.16 · confirm the key comes out in OFF
☐	☐	☐	**1**	WIND	**Anemometer, analog 0.4–2.0 V** 7–24 V supply; 0.5–50 m/s	`Adafruit 1733`		Adafruit www.adafruit.com/product/1733	**Same**	$44.95
☐	☐	☐	**1**	SIREN	**Siren, Floyd Bell Turbo, panel mount** 5–30 V; 85–103 dB(A)	`Blue Sea 1070`	Mallory SC628ND $38.63 (75 dB at 6 V)	Amazon www.amazon.com/dp/B011N48IIW	**Choice**	$26.96
☐	☐	☐	**1**	BEACON	**NeoPixel ring 16** 44.5 mm OD; beacon	`Adafruit 1463`	Ring 24 (1586) $16.95	Adafruit www.adafruit.com/product/1463	**Same**	$9.95

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
☐	☐	☐	**1**	BEACON	**Clear acrylic dome 80 mm with flange** beacon diffuser (sand it frosted)	Trolleyshop B07L6FBMXF		Amazon www.amazon.com/dp/B07L6FBMXF	**Same**	$12.99
☐	☐	☐	**1**	ANT	**Antenna 915 MHz 5 dBi SMA-M, 2-pack** folding, 19.5 cm	Amazon B0D47HVCK7	Abracon AEACAC195013-S915 $14.72	Amazon www.amazon.com/dp/B0D47HVCK7	**Same**	$11.99
☐	☐	☐	**1**	ANT	**u.FL to SMA-F pigtail 15 cm, 5 pcs** to the lid bulkhead	HiLetgo B01HXU1PKS		Amazon www.amazon.com/dp/B01HXU1PKS	**Spec**	$7.79 · check it has a bulkhead nut
☐	☐	☐	**1**		**Cable glands PG7, 20-pack** leads, anemometer cable	Amazon B0CTCHB115		Amazon www.amazon.com/dp/B0CTCHB115	**Same**	$8.88
☐	☐	☐	**10**	Rt1–Rt6	**Resistor 3.30 kΩ 0.1 % 1/4 W** Rt1–Rt6 + spares	Yageo MFP-25BRD52-3K3		Digi-Key www.digikey.com/en/products/result?keywords=…	**Spec**	$0.43 × 10 = $4.30 · $0.43 each at 10
☐	☐	☐	**2**	D0	**Schottky 1N5817** D0 (TEST rail) + spare	onsemi 1N5817G	MCC 1N5817-TP $0.29	Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$0.67 × 2 = $1.34
☐	☐	☐	**10**	TVS1–TVS6	**TVS SMBJ15A** pad lines; 15 V working (above 14.4 V charge)	Littelfuse SMBJ15A	1.5KE18A (through-hole) $1.06	Digi-Key www.digikey.com/en/products/result?keywords=…	**Spec**	$0.30 × 10 = $3.00 · 1.5KE15A (12.8 V working) would conduct while charging
☐	☐	☐	**6**	D1–D6	**Dual Schottky BAT54S, SOT-23** ADS input clamps, one per pad	BAT54S		Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$0.10 × 6 = $0.60 · est. — price not confirmed
☐	☐	☐	**1**	TVS0	**TVS 1.5KE18A** +12 SW input	Littelfuse 1.5KE18A		Digi-Key www.digikey.com/en/products/result?keywords=…	**Same**	$1.06
☐	☐	☐	**1**	MAST	**Aluminium tube ½ in OD × 24 in, 4 pcs** beacon mast (two lengths + coupler)	Amazon B0GF6CG843		Amazon www.amazon.com/dp/B0GF6CG843	**Choice**	$29.99
☐	☐	☐	**1**	S1	**Main switch, waterproof toggle 30 A 12 V** with boot	Amazon B0CPLLRR4Q		Amazon www.amazon.com/dp/B0CPLLRR4Q	**Same**	$9.99
☐	☐	☐	**1**		**LED voltmeter 0.28 in, 8 pcs** battery gauge on the end panel	Amazon B08RYPRZFF		Amazon www.amazon.com/dp/B08RYPRZFF	**Choice**	$9.99 · optional
☐	☐	☐	**2**		**Perma-Proto full-size board** logic board and power-board carrier	Adafruit 1606		Adafruit www.adafruit.com/product/1606	**Same**	$10.95 × 2 = $21.90
☐	☐	☐	**1**		**Aluminium bar 25 × 6 × 200 + insulating pads** MOSFET heat spreader			any	**Choice**	$8.00 · est.
☐	☐	☐	**1**		**12 / 14 AWG wire, ring lugs, heat-shrink, passives, LEDs** allowance			any	**Choice**	$25.00 · est.

Orders

VENDOR	ORDER NO.	DATE	TOTAL	RECEIVED	LINES / NOTES

Build total: _____ **Started:** _____ **First power-up:** _____

Notes