IRIDIUM B BOX · PARTS

Boat 1 · A11-B · v10.5 · plastic box, not picked (drawn about 7 x 5 x 4 in) · backup battery, near Pi B

A

plastic box with a plate

Box: plastic, with a mounting plate
About 3 in plate to lid. Not picked
1 · pick first

B



Modem: RockBLOCK 9603
External antenna version, SMA jack. 1.77 x 1.77 in
1 · have

C



5 V supply: Mean Well DDR-15G-5
Isolated. 9 to 36 V in, 5 V 3 A out
1 · have

D



Short DIN rail, two end stops
35 mm rail, about 2 in long
1 · have (kit)

E



Surge diode 1.5KE33CA
Across the Mean Well's input. Legs short, sleeved
1 · have (kit)

F



The modem's own cable, FTDI TTL-232R-3V3
Cut 8 in from the small plug. Photo: same cable
1 · have (came with it)

G



Lever connectors: 2-way x2, 3-way x1
WAGO 221-412, 221-413 fit (a guess)
3 · buy (not priced)

H

short black wire

Short black wire, about 3 in
22 AWG. Mean Well –Vo to the 3-way lever
1 · have (kit)

I



Gland P: PG11, sealant-filled
3/4 in hole. 14/2 does not fit a PG7
1 · check (count kit)

J



Glands S and X: PG7
Grip 1/8 to 1/4 in; 1/2 in holes
2 · have

K



Coax jumper: LMR-240 class, SMA to N
Made up to measured length
1 · check (length)

L



Ferrite, mix 31
On the coax just below X, glued down
1 · have

M

nylon spacers

Nylon standoffs and screws
M2.5 kit. Hold the modem off the plate
1 · have (kit)

N

flat two-core cable

14/2 tinned duplex, the feed
From the backup battery board (A10)
1 · have (roll)

O

tube of sealant

Sealant: Berkland 4000 UV
Fills gland P round the oval jacket
1 · check

P

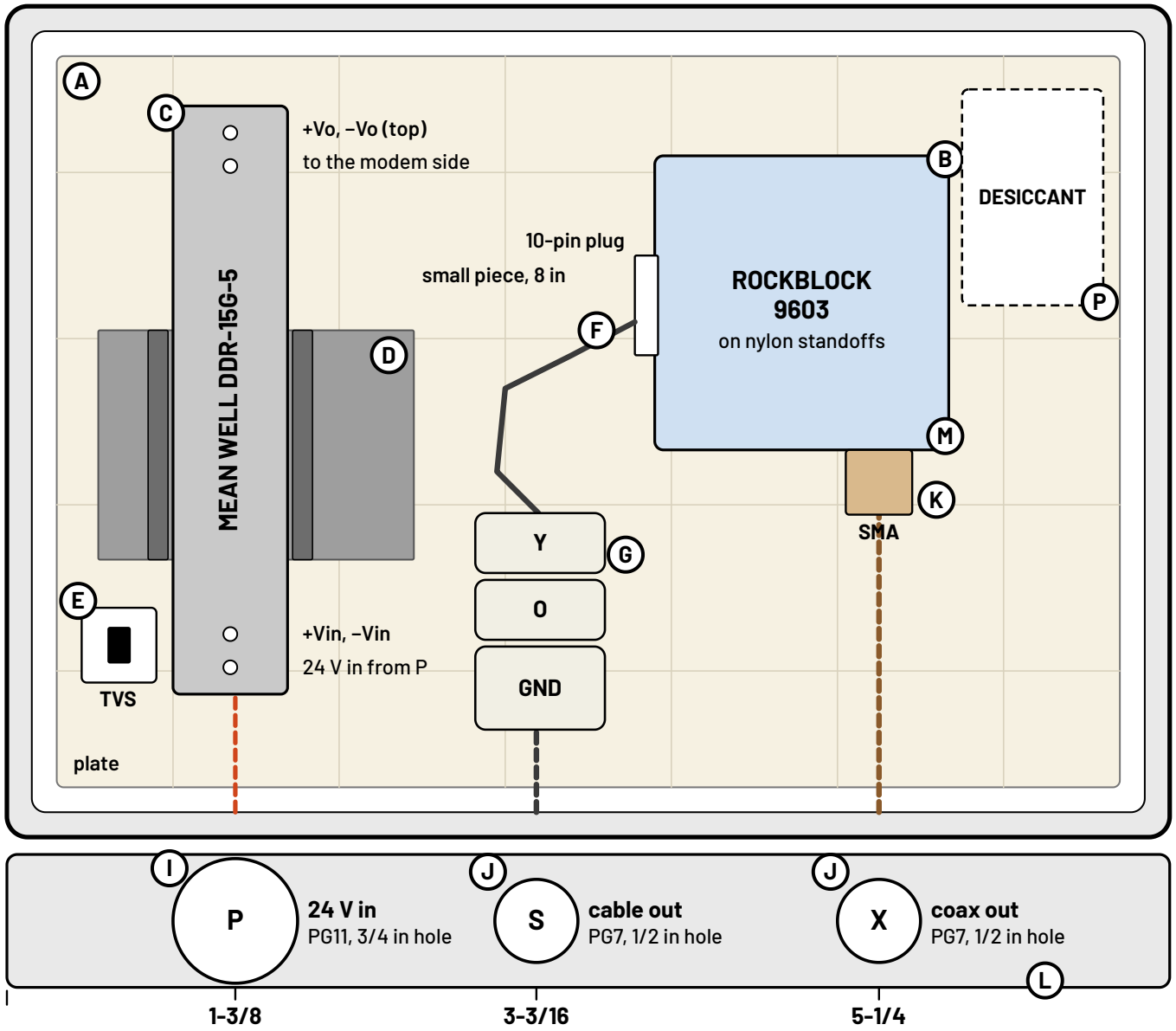


Desiccant pack
Small pack
1 · check shelf

Q

ferrules, heat shrink

Ferrules, heat shrink, labels
Ferrules 14 to 22 AWG
1 · have (kits)



inches from the left end of the box · all three 1-13/16 in up from the back face

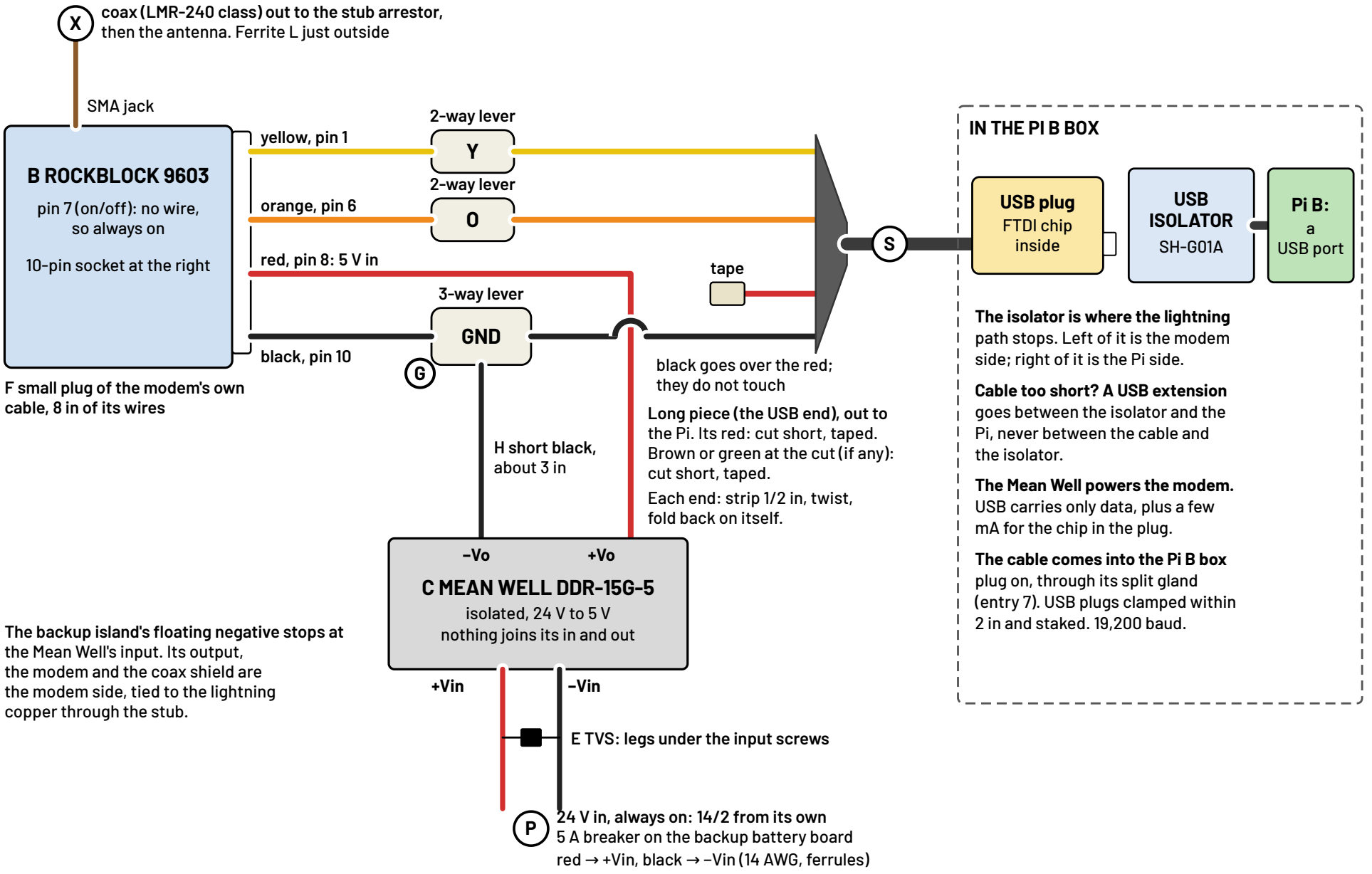
BOTTOM WALL
P 24 V in: PG11, 3/4 in hole, sealant round the oval 14/2
S the modem's cable out: PG7
X the coax out: PG7
Each hole under what it feeds, at least 1.85 in apart. Nothing on top, no vent (Mike, Oct 31).

THE BOX IS NOT PICKED
Drawn about 7 x 5 x 4 in, full size. Re-measure the hole spots on the box bought; keep the order P, S, X under the parts.

ON THE PLATE
The Mean Well stands about 2-1/2 in off the plate on its rail. The RockBLOCK's SMA faces down to X; tie the coax to the plate so it hangs no weight on the SMA.

OPEN
A coax plug will not pass a PG7 (page 4).

Letters = page 1
Dashed = cables from their holes



yellow: data out of the modem · orange: data in · red: 5 V, 24 V · black: ground · coax · the cable's jacket

IRIDIUM B BOX · EVERY WIRE

no terminal strip: the Mean Well's screws and three lever connectors hold every join

MEAN WELL SCREWS

One wire per screw, on a ferrule; only the TVS legs share the input screws.

Screw	What goes under it
+Vin	24 V in: P red (14 AWG, ferrule) and one TVS leg, same screw
–Vin	0 V in: P black (14 AWG, ferrule) and the other TVS leg. The backup island's floating negative stops here
+Vo	5 V out: the small piece's red (pin 8), folded back, straight under the screw
–Vo	0 V out: short black wire H (ferrule) to the 3-way lever

LEVER CONNECTORS, OVER S

Lever	Slots
Y, 2-way	slot 1: long piece yellow (to the Pi). Slot 2: small piece yellow (pin 1, out of the modem)
O, 2-way	slot 1: long piece orange (from the Pi). Slot 2: small piece orange (pin 6, into the modem)
GND, 3-way	slot 1: long piece black. Slot 2: small piece black (pin 10). Slot 3: short black from –Vo

THE SMALL PLUG'S WIRES

Mike's photo, Oct 15. The plug itself is never cut.

Plug	Wire	Job
pin 1	yellow	data out of the modem → lever Y
pin 6	orange	data into the modem → lever O
pin 7	no wire	on/off: floating reads as on
pin 8	red	5 V in ← Mean Well +Vo
pin 10	black	ground → lever GND

CABLES IN, BY GLAND

Gland	Cable	Cores
P	14/2 feed, PG11	red → +Vin, black → –Vin. Sealant round the oval jacket. From 14/2 from its own 5 A breaker on the backup battery board (A10)
S	the modem's cable, PG7	long piece, cut end pushed in from outside. Yellow → Y, orange → O, black → GND. Red: cut short, taped. Brown or green (if any): cut short, taped. USB plug outside → Pi B box entry 7 (split gland) to its USB isolator
X	coax, PG7	LMR-240 class jumper, SMA plug → the RockBLOCK's SMA jack. Other end: N plug to its own stub arrestor at its own foredeck hull entry

PLUGS

Small plug into the RockBLOCK's 10-pin socket. Coax SMA onto the modem: hand-tight plus a little, DeoxIT on the mating. USB plug (outside) into the SH-G01A isolator in the Pi B box, the isolator into a Pi B USB port. Never straight into the Pi or the hub.

WIRE AND ENDS

Feed cores 14 AWG on ferrules. The cable's wires: strip 1/2 in, twist, fold back on itself before it goes in a lever. TVS legs short and sleeved. Labels at both ends. Supply and return in one jacket; no coax coiled in a circle. Drip loop below every hole, a cable clamp on a glued pad below.

NEVER FIT

A potted Klnuoxj or any converter that joins its 5 V minus to its 24 V minus. Modem power over USB. A coax bulkhead, a safing relay or a gas-tube arrestor. ADuM1201 boards, a 3.3 V regulator, the tails cable. Anything shared with the other Iridium box.

BEFORE WIRING

Confirm the modem has an SMA jack (the external antenna version), and bench-test it on its own cable before the cable is cut (Instrument Post Guide 16.1). Cut the cable 8 in from the small plug; keep both pieces. On the plate: the short rail, the Mean Well with two end stops, input screws down; the RockBLOCK on nylon standoffs, SMA down. Drill P (3/4 in), S and X (1/2 in) in the bottom wall.

AFTER WIRING

Tighten the glands; sealant round the feed in P. Desiccant in; dielectric grease on the gland inserts and the lid gasket. Box glued to a pad glued to the boat. Ferrite L on the coax just below X, glued down. Stub's 6 AWG ground lead straight aft to the junction, sweeping bends (Lightning Guide 7.1).

OPEN

- The box: none picked; not the TICONN 5.9 x 5.9 x 3.5 in.
- Entry X: the coax's SMA and N plugs will not pass a PG7 (it grips 1/8 to 1/4 in; LMR-240 is 0.24 in across). A split gland, a bigger gland, or a jumper made up after it passes: not settled.
- The cable's length: not known (about 6 ft, Claude's reading).
- The lever connectors: not priced or bought. The cable's wires are likely thinner than a WAGO 221's 24 AWG floor (inferred), hence the fold back.
- Coax jumpers made to measured length, after both runs are measured.
- The arrestor's 6 AWG ground lead length, measured at fit-out (Instrument Post Guide 12.3).