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POWER AND DATA PLAN

Spec #: KG3-BEA-PWR-01

Job: Beabadoobee 2026 Headline Tour

Date: September 1, 2026

Power & Data Plan • beabadoobee 2026



KG3 · lengths per Sheet 4.11 V2.2 (12.08.2026) · pixel neon power and data distribution · injectors fly in the truss, power only comes down at each pickup · full white worst case, 23.04 W/m measured Aug 14 2026

Data & power flow: how to read these diagrams

Data and power both originate at the pylon. Every run's **PXL-CTRL** is the single source of data for that run and the first source of power. Data leaves the controller once and travels **through the rope itself**, segment to segment on the 3-core lead, passing every drop untouched. That is the yellow line.

Every PWR-NJCT is power only. It takes **powerCON TRUE1 up to the box** and feeds the rope it hangs over through our own drop. Nothing else lands on it. The winch is rigging only, nothing electrical rides the winch line: on DS/US the power drop comes down at the winch pickup; on the audience APs (chain motors, static) it is a fixed cable on the black pickup cable. No data enters it, no data leaves it. That is the red drop.

Where the power actually lands: the drop comes down the pickup to the rope, then **a Wye feeds it into the LED**. Red arrows on each diagram show which way each feed runs. A mid-rope injector feeds **both** directions, landing on the **end** of the segment arriving at it and the **beginning** of the segment leaving it. An injector at the last pickup has nowhere forward to go, so it feeds **back** one direction only. Beginning and end are defined by **data flow**, not by stage geography: the end of a segment is the end the data leaves by.

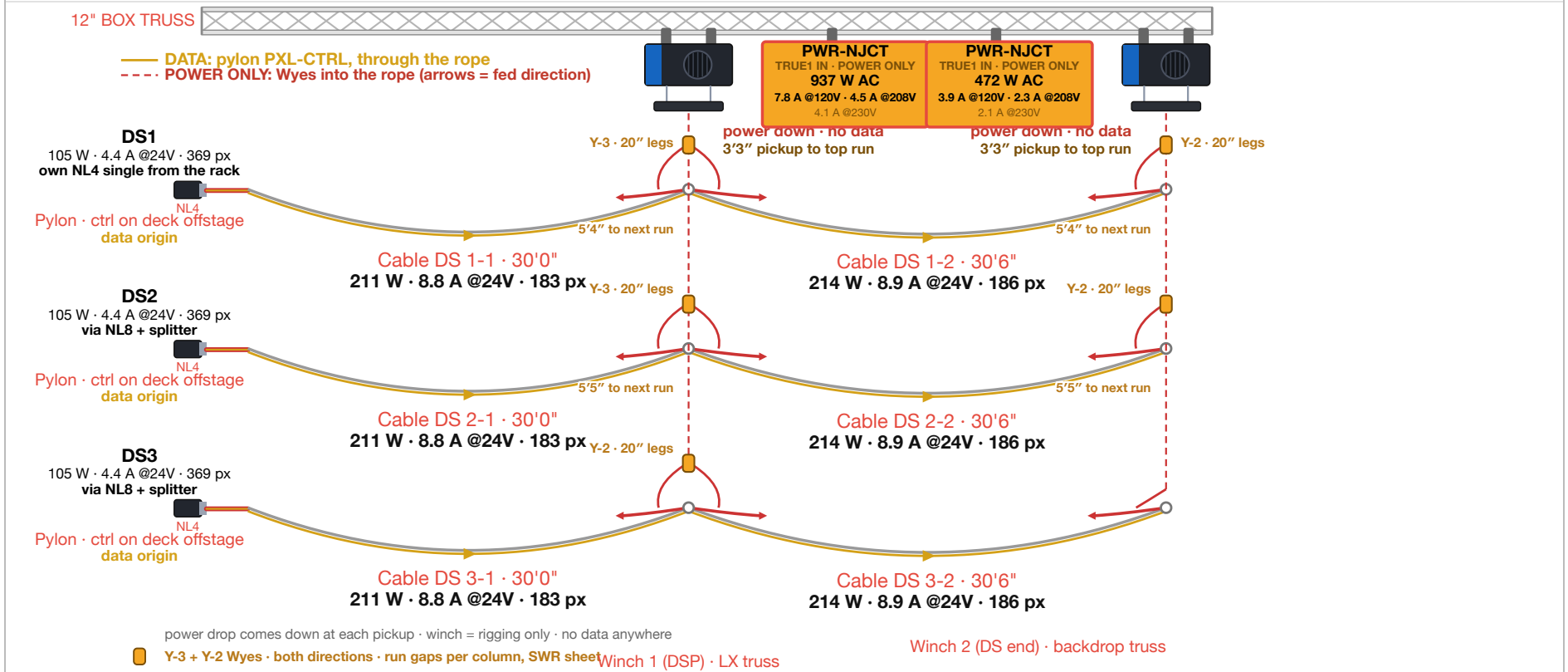
BOX	POSITION	DATA IN	DATA OUT	POWER IN	POWER OUT
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PXL-CTRL	Pylon rack (deck at the pylon base)	Cat5 / etherCON , sACN or Art-Net from the LX network	Yes , origin, into rope segment 1	powerCON TRUE1 , AC mains, auto-switching 100–240V	Feeds the rope near end (our cabling)
PWR-NJCT	Flown at each pickup (winch on DS/US, chain motor on the audience APs)	None	None	powerCON TRUE1 , up to the box	Down our drop into the rope, run to run through our Y-3 and Y-2 Wyes, feeding each run in both directions

In the field: a dead segment downstream of an injector is a *data* fault: trace back through the rope to the pylon, not to the injector. A dim or color-shifted segment near an injector is a *power* fault. The two paths never cross, so the symptom tells you which cable to pull.

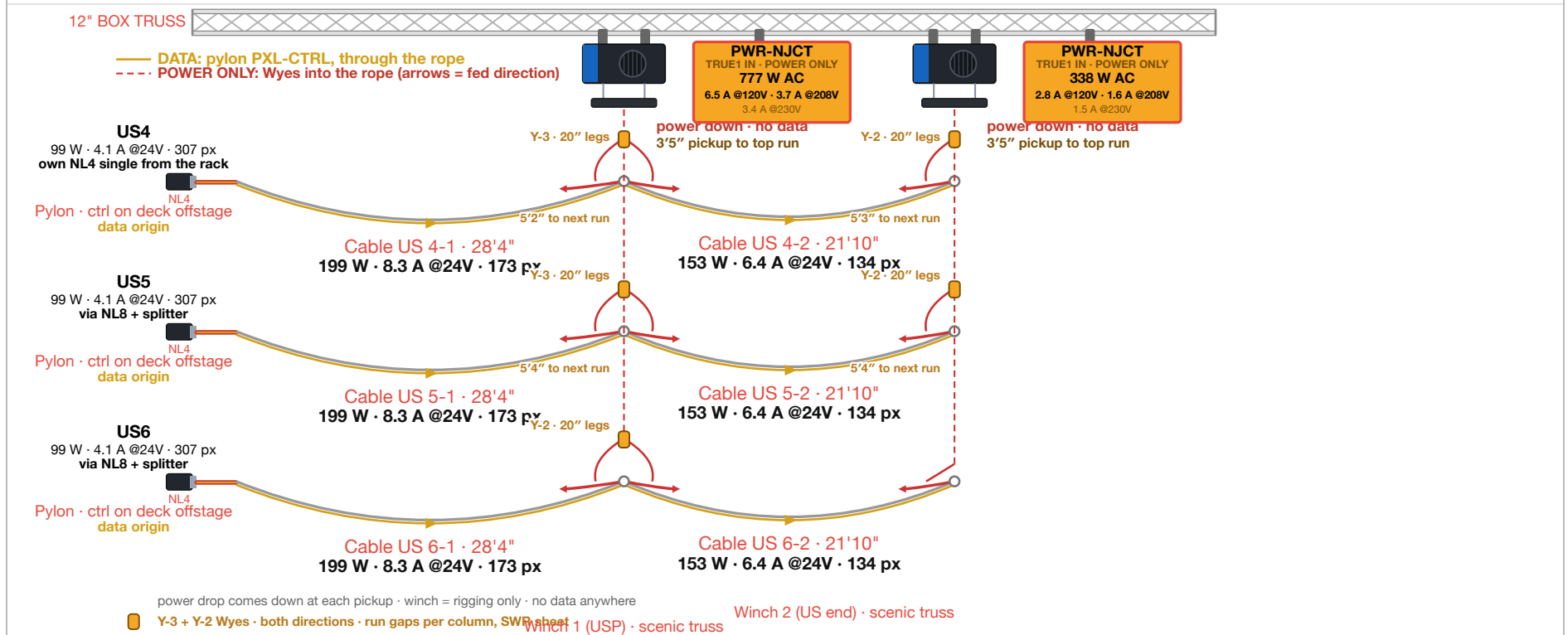
MS WIRE ROPE: 3 ropes DS1 to DS3 · injectors flown at Winch 1 + Winch 2

3 ropes · 181'6" · 55.3 m · 1,107 px · 1275 W · 53.1 A @24V



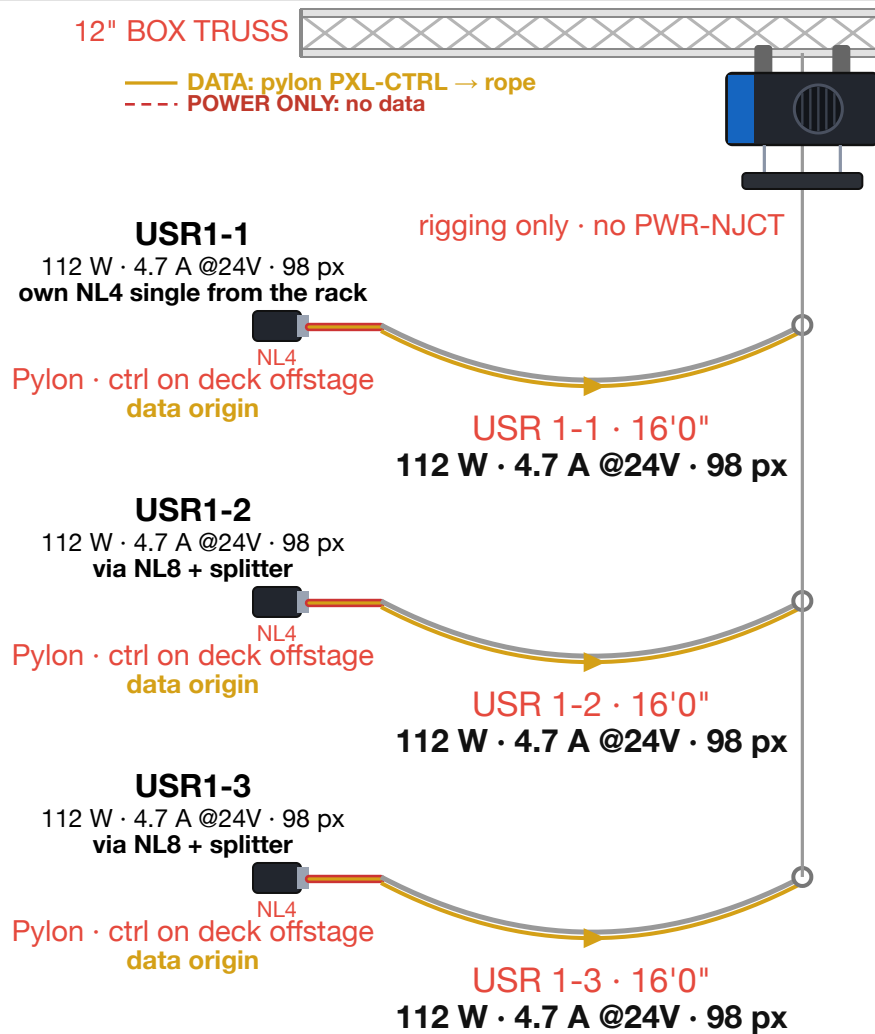
US WIRE ROPE: 3 ropes US4 to US6 · injectors flown at Winch 1 + Winch 2

3 ropes · 150'6" · 45.9 m · 921 px · 1057 W · 44.0 A @24V



US 1: 3 ropes USR1 · CTRL C single-end · no injector

3 ropes · 48'0" · 14.6 m · 294 px · 337 W · 14.0 A @24V

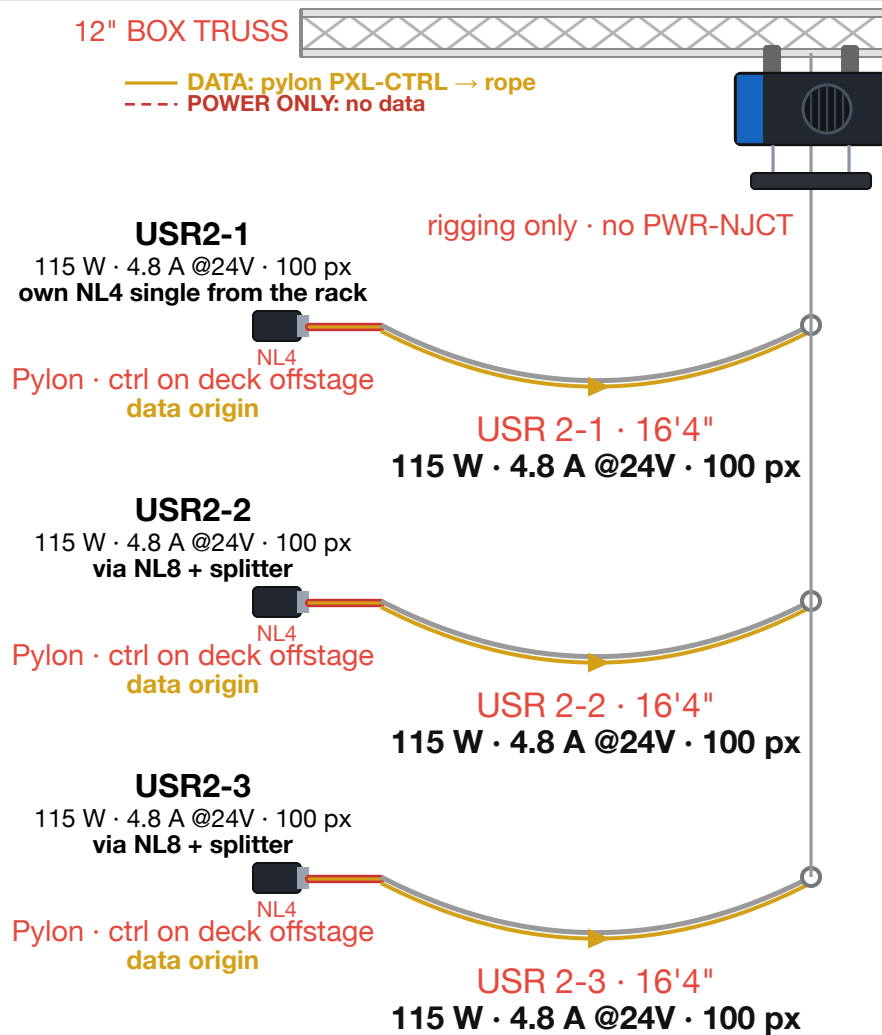


winch = rigging only, nothing electrical on it

Winch 1 · backdrop truss (rigging only)

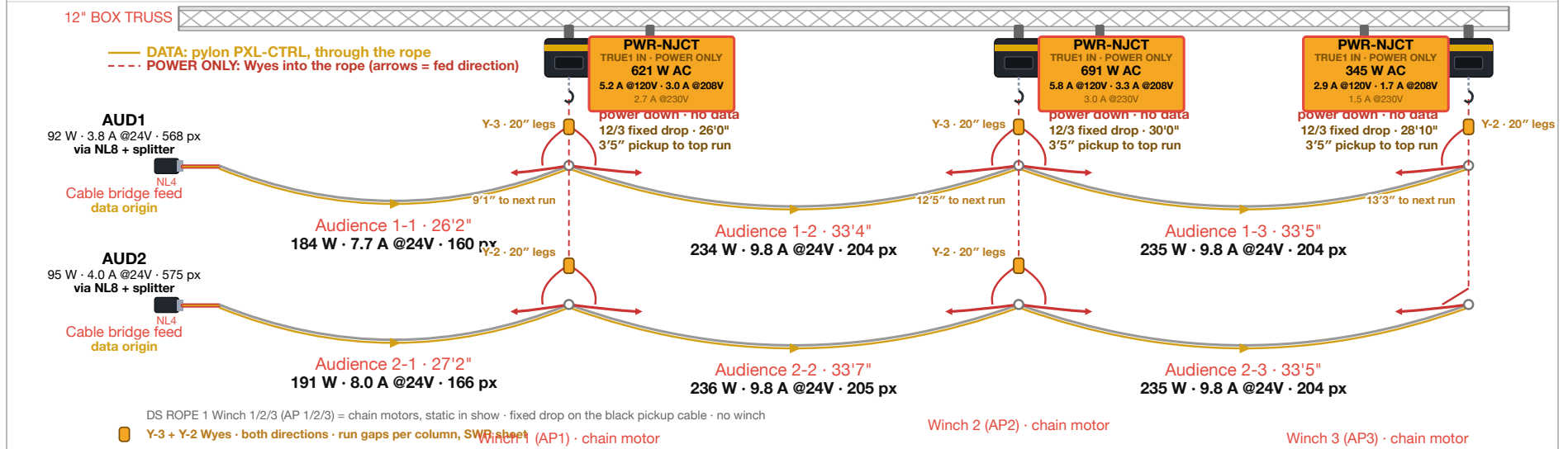
US 2: 3 ropes USR2 · CTRL D single-end · no injector

3 ropes · 49'0" · 14.9 m · 300 px · 344 W · 14.3 A @24V



DS ROPE 1: 2 ropes AUD1 + AUD2 · injectors at Winch 1 / 2 / 3 on chain motors (no winch)

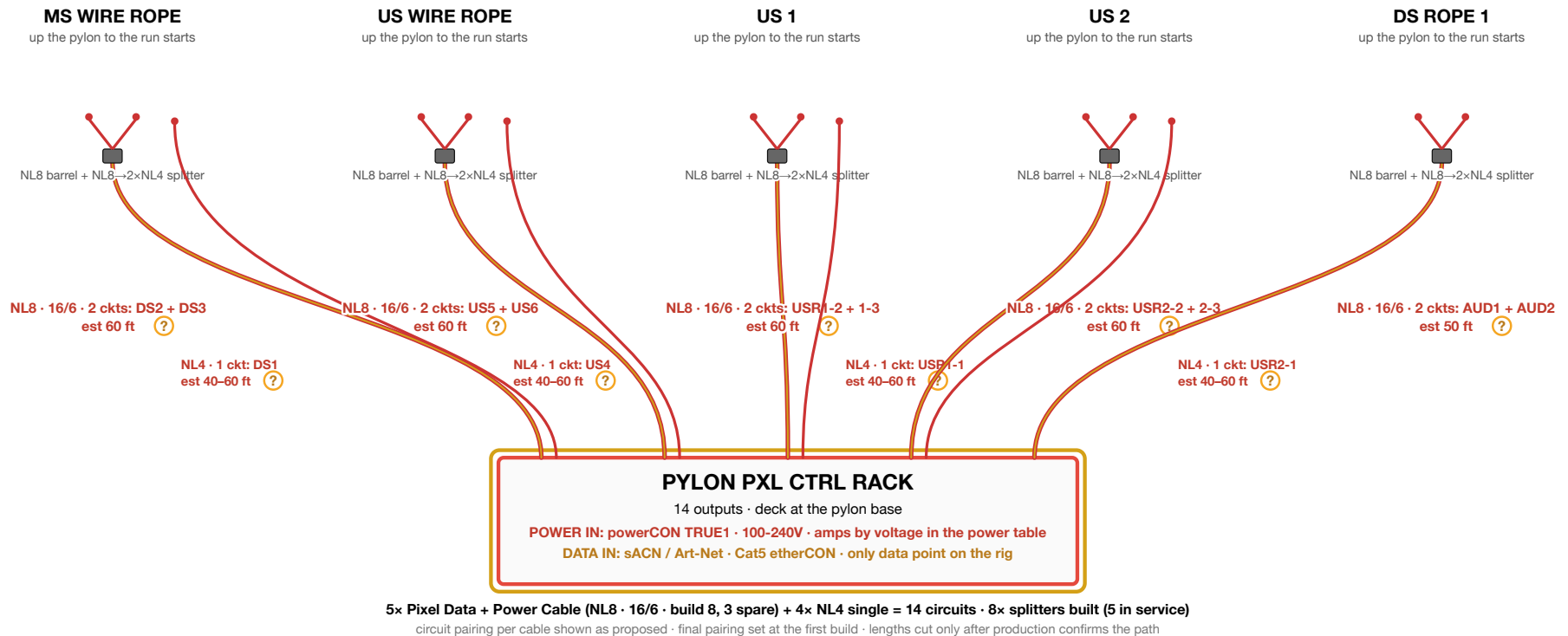
2 ropes · 187'1" · 57.0 m · 1,143 px · 1314 W · 54.7 A @24V



KG3 cable plan: rack to LED, every cable with a length

Decision of record (Aug 31): the feeders leave the **pylon control rack** on our **Pixel Data + Power Cables (NL8)** plus one NL4 single per stage group. Each Pixel Data + Power Cable carries **two circuits** (V+ / GND / Data each, built on 16/6 wire); an **NL8 barrel** at the top couples the cable to an **NL8-to-2x-NL4 splitter** that lands the two runs it serves. The first run of each stage group rides its own NL4. Audience takes one NL8 only. That is **5x NL8 + 4x NL4 = 14 circuits**, matching the 14 controller outputs above.

 **RED outline = LX power needed here (powerCON TRUE1)**  **YELLOW outline = console data needed here (sACN / Art-Net)**
 **BOTH = pylon rack, the only point on the rig that takes power and data**  **? = length to be confirmed with production**



Pixel Data + Power Cable lengths marked  are estimates from pylon geometry (arms at ~18'2" / 23'7" / 28'7", 10 ft ground run + 5 ft slack) and are **not cut lengths**. The Wye chains at the injection columns (Y-3 at each upper run, Y-2 at the bottom run) are drawn at the confirmed 5'2" to 5'6" between runs. **Run spacing CONFIRMED by production (Josh Slade SWR schedule, Sep 1 2026): 5'2" to 5'6" run to run, with the top run 3'1" to 3'5" below the pickup.** The Wye tails are 20" with the NL4 on, so two tails do not span a 5'2" to 5'6" gap on their own: a 20" stock jumper between Wyes covers every DS and US run with 0 to 3" of slack, and only the two audience jumpers are cut long.

Power requirements by point: international mains options

Every KG3 box runs an auto-switching **100–240V** supply, so 110/120, 208, 220 and 230V legs all work unchanged, **no voltage restriction at any point**. Figures below are max draw at full white with 25% headroom already included.

POINT	FEED	LED LOAD	AC WATTS (W/ HEADROOM)	A @ 120V (US)	A @ 208V	A @ 230V (UK)
Pylon PXL CTRL rack	TRUE1 + etherCON data	1,483 W	2,181 W	18.2	10.5	9.5
PWR-NJCT 1 · MS WIRE ROPE Winch 1 (DSP), LX truss	TRUE1	637 W	937 W	7.8	4.5	4.1
PWR-NJCT 2 · MS WIRE ROPE Winch 2 (DS end), backdrop truss	TRUE1	321 W	472 W	3.9	2.3	2.1
PWR-NJCT 3 · US WIRE ROPE Winch 1 (USP), scenic truss	TRUE1	528 W	776 W	6.5	3.7	3.4
PWR-NJCT 4 · US WIRE ROPE Winch 2 (US end), scenic truss	TRUE1	230 W	338 W	2.8	1.6	1.5
PWR-NJCT 5 · DS ROPE 1 Winch 1 (AP1), chain motor	TRUE1	422 W	620 W	5.2	3.0	2.7
PWR-NJCT 6 · DS ROPE 1 Winch 2 (AP2), chain motor	TRUE1	470 W	691 W	5.8	3.3	3.0
PWR-NJCT 7 · DS ROPE 1 Winch 3 (AP3), chain motor	TRUE1	235 W	346 W	2.9	1.7	1.5
Rig total (8 separately fed points)		4,326 W	6,361 W	53.1	30.6	27.7

The total row is the sum across all eight points, not a single service: each point takes its own TRUE1 feed. Only the pylon rack takes data.

Pylon power: 1,483 W total at the pylon, **one TRUE1 circuit covers it** (amps at each voltage are in the table above): land the feed on the rack and it daisy-chains box to box on TRUE1 pass-through. That is the pylon area only, about a third of the 4,327 W rig; the flown injectors carry the remainder on their own TRUE1 feeds.

Controller allocation: 600 W / 4 outputs per box

BOX	RUNS	OUTPUTS	PIXELS	CONTROLLER DRAW	HEADROOM	NOTE
CTRL A	DS1 · DS2 · DS3 · AUD1	4 of 4	1,675	408 W of 600	192 W	injectors carry the rest of these ropes
CTRL B	AUD2 · US4 · US5 · US6	4 of 4	1,496	394 W of 600	206 W	injectors carry the rest of these ropes
CTRL C	USR1-1 · USR1-2 · USR1-3	3 of 4	294	337 W of 600	263 W	single-end runs, box carries their whole load
CTRL D	USR2-1 · USR2-2 · USR2-3	3 of 4	300	344 W of 600	256 W	single-end runs, box carries their whole load
4 controllers				1483 W		

Four boxes cover the rig: the audience runs ride the spare fourth outputs of the DS and US boxes, and every box stays inside its 600 W supply with margin. USR1 and USR2 keep their own boxes because those cables are single-end fed, so each box carries its group's entire load.

Data origins & power injection by group

GROUP	RUNS	DATA ORIGIN (PYLON)	DATA DROPS	POWER INJECTION, POWER ONLY	FLOWN INJECTORS
MS WIRE ROPE	3	CTRL A · out 1/2/3	0	Winch 1 (DSP) · LX truss, + Winch 2 (DS end) backdrop truss	2
US WIRE ROPE	3	CTRL B · out 2/3/4	0	Winch 1 (USP) · scenic truss, + Winch 2 (US end) scenic truss	2
US 1	3	CTRL C · out 1/2/3	0	none, single-end fed, ~5 m each	0
US 2	3	CTRL D · out 1/2/3	0	none, single-end fed, ~5 m each	0
DS ROPE 1	2	CTRL A out 4 + CTRL B out 1 (cable bridge feed)	0	Winch 1 / 2 / 3 (AP1 / AP2 / AP3)	3
Rig total	14	4 controllers in the rack + 1 road spare · every run starts at the pylon	0	at pickup points only (4 winch + 3 chain motor)	7

One flown injector per pickup serves every rope in its group. so the 7 boxes below match the 7 pickups above. Data drops are zero everywhere by design:

no run takes data from anywhere but its pylon controller.

Power injector loads: flown boxes

BOX	GROUP	PICKUP	ROPES FED	OUTPUT	A @ 24V DC	DOWN THE DROP, A @ 24V DC
PWR-NJCT	MS WIRE ROPE	Winch 1 (DSP) · LX truss	3	637 W	26.6 A	26.6 A down the drop
PWR-NJCT	MS WIRE ROPE	Winch 2 (DS end) · backdrop truss	3	321 W	13.4 A	13.4 A down the drop
PWR-NJCT	US WIRE ROPE	Winch 1 (USP) · scenic truss	3	528 W	22.0 A	22.0 A down the drop
PWR-NJCT	US WIRE ROPE	Winch 2 (US end) · scenic truss	3	230 W	9.6 A	9.6 A down the drop
PWR-NJCT	DS ROPE 1	Winch 1 (AP1) · chain motor	2	422 W	17.6 A	17.6 A down the drop
PWR-NJCT	DS ROPE 1	Winch 2 (AP2) · chain motor	2	470 W	19.6 A	19.6 A down the drop
PWR-NJCT	DS ROPE 1	Winch 3 (AP3) · chain motor	2	235 W	9.8 A	9.8 A down the drop
7 flown injectors				2843 W	118.5 A	118.5 A

Rig totals

GROUP	ROPES	INJECTORS	LENGTH	METERS	PIXELS	WATTS	A @ 24V DC
MS WIRE ROPE	3	2	181'6"	55.32	1,107	1,275 W	53.1 A
US WIRE ROPE	3	2	150'6"	45.87	921	1,057 W	44.0 A
US 1	3	0	48'0"	14.63	294	337 W	14.0 A
US 2	3	0	49'0"	14.93	300	344 W	14.3 A
DS ROPE 1	2	3	187'1"	57.03	1,143	1,314 W	54.7 A
Rig total	14	7	616'1"	187.8	3,765	4.33 kW	180.3 A

