



24 buttons on one bus.

A priced application for a 24 circuit boat: CZONE already fitted, or the STAR range. Set up from a spreadsheet, tested from one button.

Six sealed stainless buttons plug into each node. One LIN Master Node bridges the chain to the NMEA 2000 backbone; three more nodes share its 12 V and LIN feed on standard NMEA 2000 5 core cable. This note gives the parts and US\$ retail price, the setup, the power draw and the night dimming behaviour, against CZONE's published figures. Auto brightness and Pre-check are patent applied for.

COMMON TO BOTH OPTIONS

Switch layer: 4 nodes, 24 buttons

ITEM	QTY	RRP	US\$
LIN Master Node, 6 button, CAN bridge, IP67 case	1	159.00	159
LIN Node, 6 button, IP67 case	3	126.30	379
Cable, node to switch	24	6.30	151
Stainless RGB push button, laser annealed icon	24	16.10	386
NMEA 2000 5 pin cable, 3 ft	4	22.00	88

Switch layer, with LIN master 1,164

Buttons are a separate SKU, so the builder chooses the exact switches to suit. Unused node outlets are capped. The master node is a LIN Node with a CAN bridge; it holds the setup and runs Pre-check. Add the plug-in ambient light sensor for auto brightness, US\$ to be announced.

OPTION 1

CZONE is already on the boat

Nothing is removed and nothing is reprogrammed. CZONE keeps switching the loads and its pages on the MFD. The LIN Master Node reads and writes circuit state as PGN 127501 / 127502, so ring and CZONE page always agree. No other controller is needed.

ITEM	QTY	RRP	US\$
Switch layer, from above			1,164

Option 1 total, CZONE modules unchanged 1,164

FOR REFERENCE

Same 24 buttons on CZONE keypads

ITEM	QTY	APPROX	US\$
CZONE 6 Way Waterproof Keypad	4	270	1,080

Keypads only, fixed 2 × 3 layout, 52 mm cut-out each 1,080

At the switch layer the two are within a few percent. The difference is where the buttons can go, what the ring can tell you, what is cut into the dash, and the setup: a keypad is programmed per button in a vendor tool; the LIN switches are one spreadsheet row per button, loaded in ten minutes.

OPTION 2

No digital switching yet: STAR

The switch panel and the fuse block both go. STAR controllers are fuseless, so the only new wiring is the load runs, sized per output. With STAR the Pre-check button is included: every circuit run and its current checked, from the helm, before the boat leaves the dock.

ITEM	QTY	RRP	US\$
Switch layer, with LIN master, from above			1,164
STAR-Power, 6 × 30 A + 6 × 10 A	1	643.10	643
STAR-Light, 10 × 10 A, dimmable	1	630.21	630

Option 2 total, switching and Pre-check included 2,437

22 switched channels plus a Pre-check button and one scene or spare. STAR output state drives the rings over CAN. Manual override at the STAR module covers every circuit.

SETUP AND SERVICE

Ten minutes with a spreadsheet. No tool, no licence.

- One row per button: node, circuit, behaviour, ring colours. Copy last boat's sheet and change a few lines
- Load it by email to the Safiery AI Configuration Service, from the Quasar page, or with a laptop on any NMEA 2000 drop
- Press one button on each node to tell the system where it is. No address switches. Replace a button or a node and it is plug and play
- Dual Channel on STAR: a fast re-press steps two circuits and the ring shows which state you are in
- Auto brightness: a 10 mm light sensor on any spare button port dims every ring on the boat, patent applied for

POWER CONSUMPTION

24 buttons, 12 V, against CZONE's published figures

A ring only draws when its circuit is on, and it is always a colour, never white: 5 to 30 mA at full daylight brightness depending on the colour, 5 mA at the Dim night preset. A keypad lights its labels and status LEDs continuously; a touchscreen lights a 1200 nit panel.

SWITCH LAYER, 24 CIRCUITS	IDLE	ACTIVE, DAY	ACTIVE, NIGHT	10 H NIGHT
4 Quasar LIN nodes, 24 buttons	24 mA, rings dark	144 to 744 mA, 24 rings lit at High	144 mA (1.7 W), 24 rings lit at Dim	1.4 Ah
4 CZONE 6 Way Keypads	7 mA in sleep state (outputs off)	up to 224 mA (4 × 56 mA max)		2.2 Ah
1 CZONE Touch 5 touchscreen	switched off by power wire	900 mA at 13.5 V (12 W)		9.0 Ah

Safieri figures are the switch layer only, 6 mA per node plus the lit rings; all 24 lit is the worst case, a typical night with 8 circuits on is 64 mA (0.8 W) at Dim, 0.64 Ah over 10 h. CZONE figures are published maximum and standby values; the keypad sleep state turns the outputs off, so it is not a like-for-like idle. The 10 h column is the night draw held for 10 hours.

5 mA

Per lit ring at the Dim night preset

48

Switches across 8 LIN nodes per bus

10 min

To set up a boat from a spreadsheet

3 min

To Pre-check 48 circuits from one button (STAR)

DAY AND NIGHT DIMMING

At the helm

	QUASAR LIN NODE	CZONE WATERPROOF KEYPAD	CZONE TOUCH 5
Dimming and night level	12-bit PWM, 4,096 steps per colour; holds steady down to 1% for night watch	4 preset levels cycled with the power key on each keypad; lowest preset at night	Screen backlight dims from the menu; panel still lights the wheelhouse
Colour	Per button; RGB, and the colour is the circuit state	12 preset colours, one for the whole keypad; separate status LEDs	On screen
Auto brightness	Plug-in sensor on any spare button port; every ring follows the light. Patent applied	None	None

High: full sun

Medium: general use

Dim: night

Auto: sensor

Three presets ship as standard, set once for all nodes in the sheet or from the MFD; Auto needs the plug-in sensor. Every ring is driven from the same 12-bit table, so 24 buttons dim as one surface.

OPTION FOR BOTH CASES
Add Remote Control.

Quasar ONE, US\$495 RRP, on the same NMEA 2000 backbone. One box, no gateway, no data plan to arrange.

- On-board 4G LTE modem and eSIM, 12 months included; Wi-Fi, GNSS and LTE on one antenna
- Creates the boat's digital twin from the NMEA 2000 bus in minutes: every circuit, tank, battery and sensor, with no forms
- Remote control of the switches and the rest of the boat from the phone, enabled aboard with local permission; health alerts and Pre-check results to the phone
- Optional 3D display of the twin on a Quasar Glass panel or the MFD, and AI setup of the switches straight from the builder's spreadsheet

COMPETITIVE ASSESSMENT

Where it stands

Close to us, but not the same

- LED state feedback. CZONE keypads show circuit on and blown fuse; EmpirBus Connect 50 drives an LED from module state.
- Remote control. CZONE needs a separate gateway and data plan; Garmin OnDeck is about US\$850 plus a subscription for 5 switches.

Where the LIN node is better

- Placement. Any 19 or 22 mm hole within a tail of the node. No fascia, no fixed pitch, no label sheet.
- Pre-check. One button tests every STAR circuit against a baseline the system learned itself. No keypad on the market does this. Patent applied for.
- Setup. One spreadsheet, ten minutes, no vendor tool. A replaced button or node is plug and play; four more switches is another node clipped in.

Innovation from automotive

- No sealed marine LIN switch node exists in the market today; EmpirBus lists LIN as hardware support with no protocol published.
- Built to the automotive LIN silicon standard: AEC- Q100, minus 40 to plus 125 C, ISO 7637-2 transients.
- Both contacts of every button are read, so an unplugged or chafed cable is reported. No keypad supervises its wiring. A button is plug and replace.
- Two patents applied for: the switch node and its plug-in sensor port and Pre-check (AU