

01 / MAINS SUPPLY & DISTRIBUTION

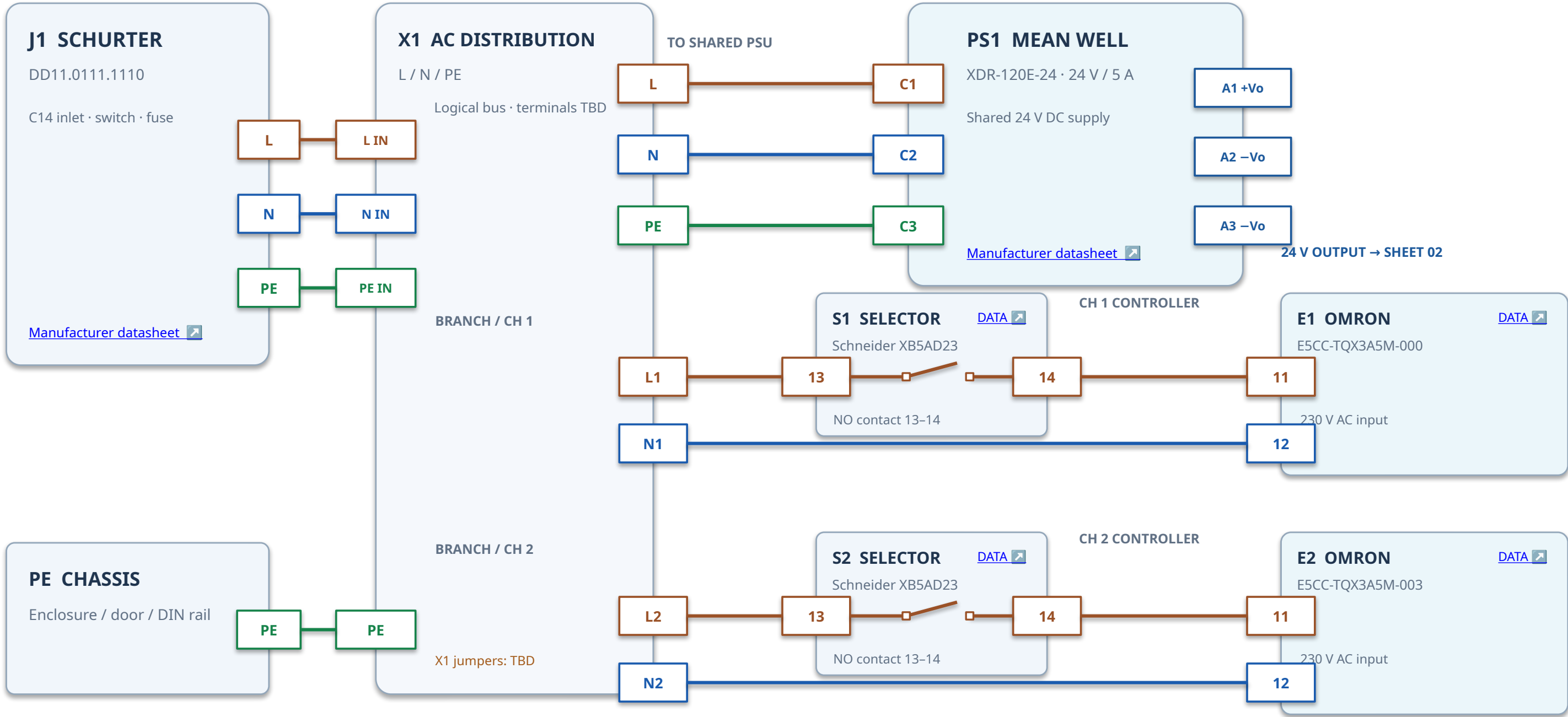
L N PE

Two independent Omron channels • Shared 24 V supply • Editable schematic

AC INPUT

DISTRIBUTION / X1

POWER SUPPLY & TWO CONTROLLER BRANCHES



DESIGN REVIEW ONLY — Not approved for wiring / energising

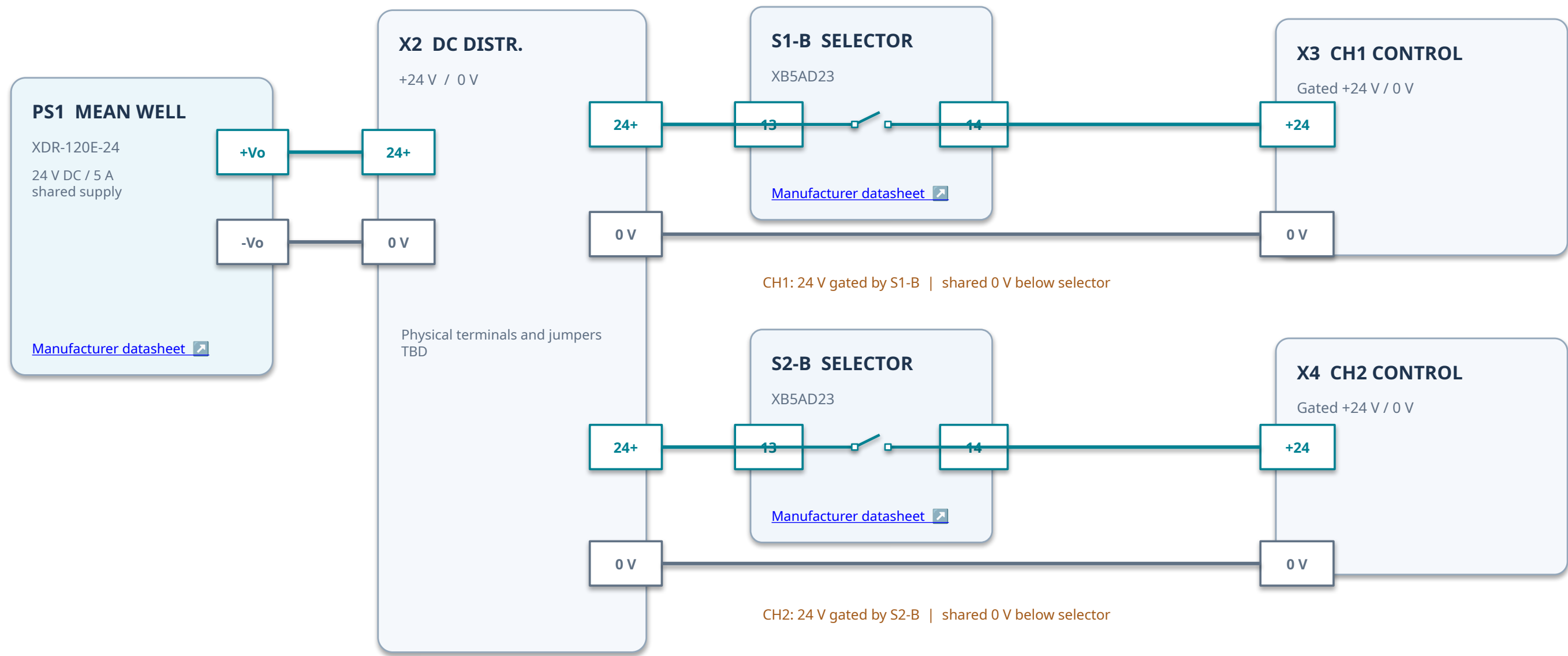
Confirm X1 terminal blocks and jumpers, DD11 output tabs / fuse, PE bonds, and 24 V interlock design.

02 / SHARED 24 V DISTRIBUTION & CHANNEL INTERLOCKS

One shared Mean Well supply; S1-B and S2-B independently enable their respective 24 V branches.

+24 V / gated
0 V return

24 V DC DISTRIBUTION / CHANNEL 1 + CHANNEL 2



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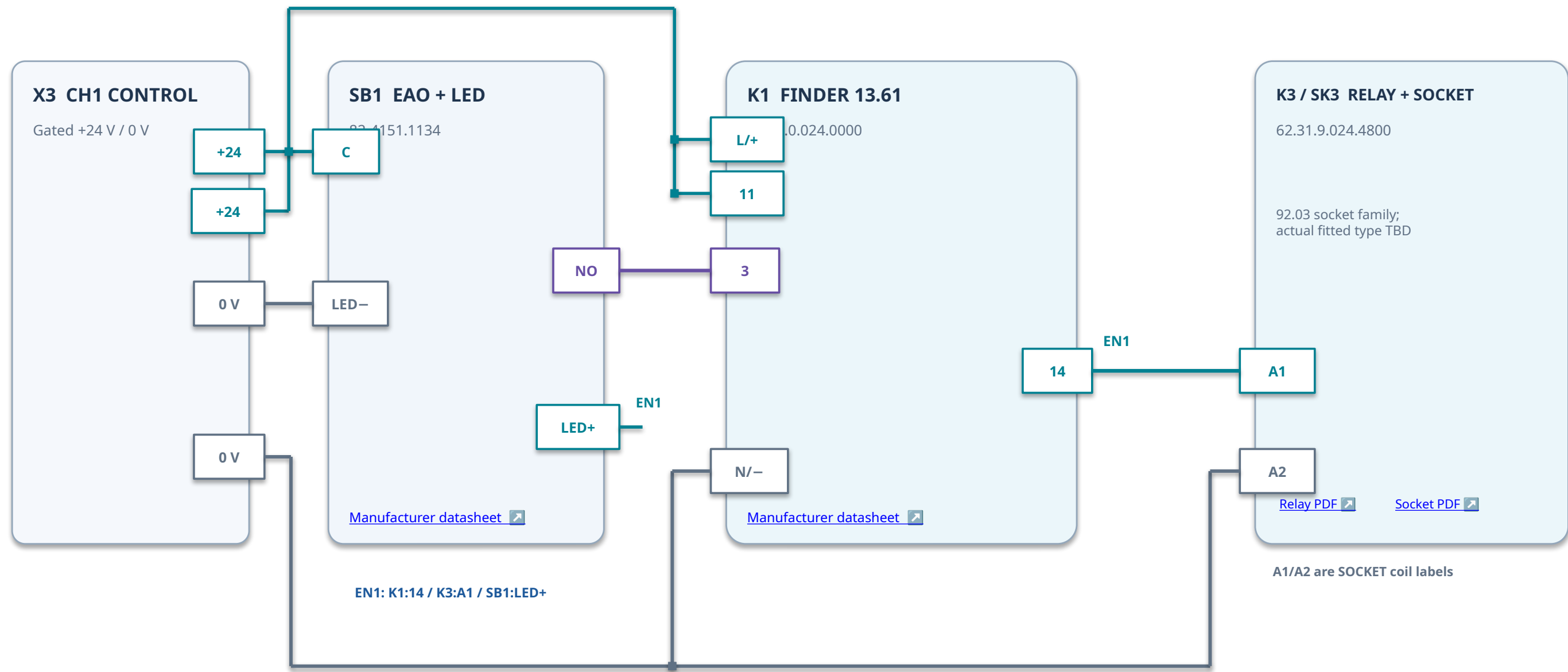
S1/S2 second contact numbering and distribution terminal hardware not yet confirmed.

03 / CHANNEL 1 / MOMENTARY ENABLE & FINDER CONTROL

EAO button pulses the Finder 13.61; its output enables the existing Finder 62.31 heater relay (CH1).

- Gated +24 V
- 0 V return
- Momentary input

HEATER ENABLE CIRCUIT / 24 V DC



Matching EN reference indicates ONE electrical net (avoids a wire crossing other circuits).

X3:+24 → button C and K1 L/+,11 | Button NO → K1:3 | EN1 → relay coil A1 and LED+ | 0V → K1:N/-, K3:A2, LED-

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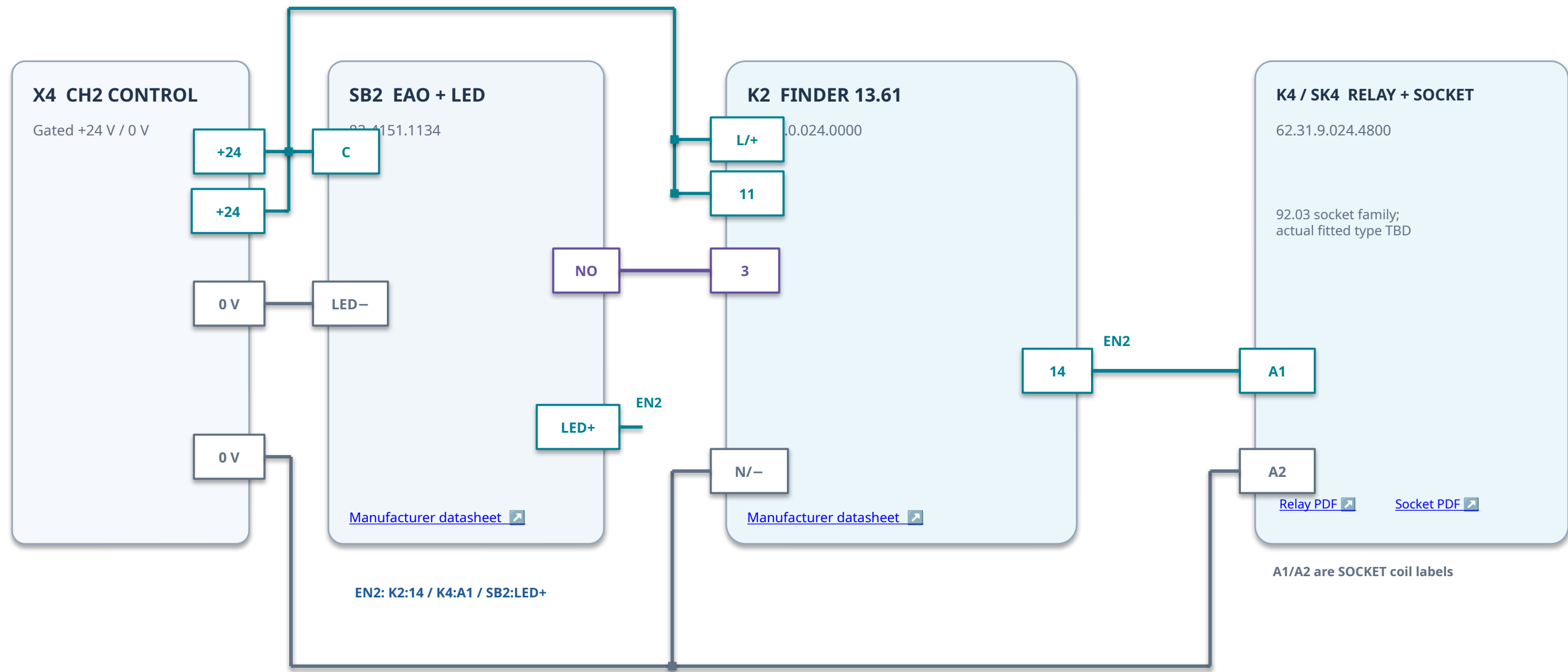
OFF-on-power-restoration and exact Finder supply/trigger/socket terminal markings remain to be verified.

04 / CHANNEL 2 / MOMENTARY ENABLE & FINDER CONTROL

EAO button pulses the Finder 13.61; its output enables the existing Finder 62.31 heater relay (CH2).

- Gated +24 V
- 0 V return
- Momentary input

HEATER ENABLE CIRCUIT / 24 V DC



Matching EN reference indicates ONE electrical net (avoids a wire crossing other circuits).

X4:+24 → button C and K2 L/+,11 | Button NO → K2:3 | EN2 → relay coil A1 and LED+ | 0V → K2:N/–, K4:A2, LED–

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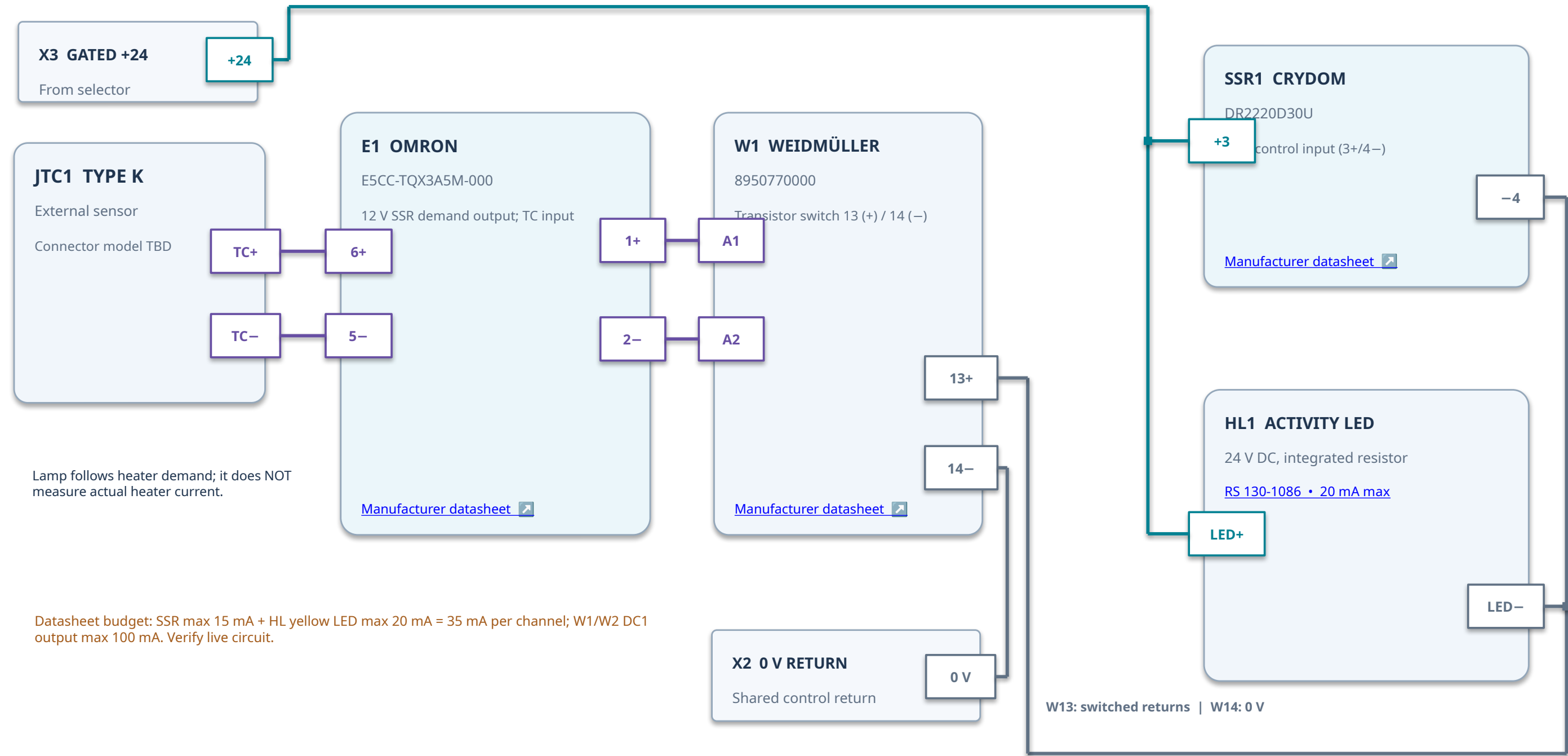
OFF-on-power-restoration and exact Finder supply/trigger/socket terminal markings remain to be verified.

05 / CHANNEL 1 / SSR DRIVE + HEATER ACTIVITY LED

Omron 12 V SSR demand controls an isolated Weidmüller interface switching both Crydom input and activity LED.

- TC / 12 V demand
- 24 V to both loads
- Switched return

THERMOCOUPLE / PULSE INTERFACE / TWO PARALLEL 24 V LOADS



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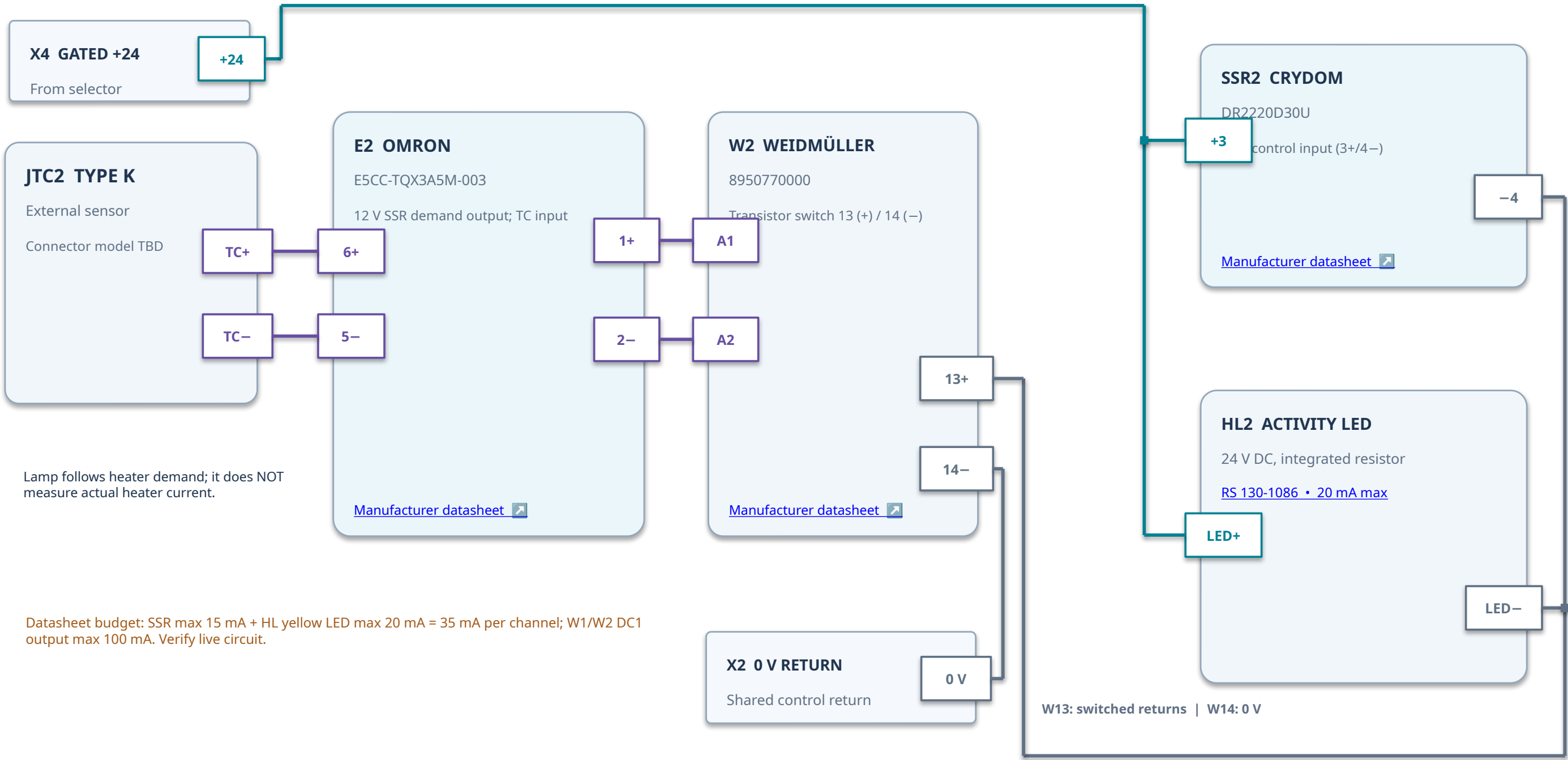
LED is on the 24 V CONTROL circuit, not the external heater: HL1/HL2 = RS 130-1086, yellow, 24 V DC, 20 mA max.

06 / CHANNEL 2 / SSR DRIVE + HEATER ACTIVITY LED

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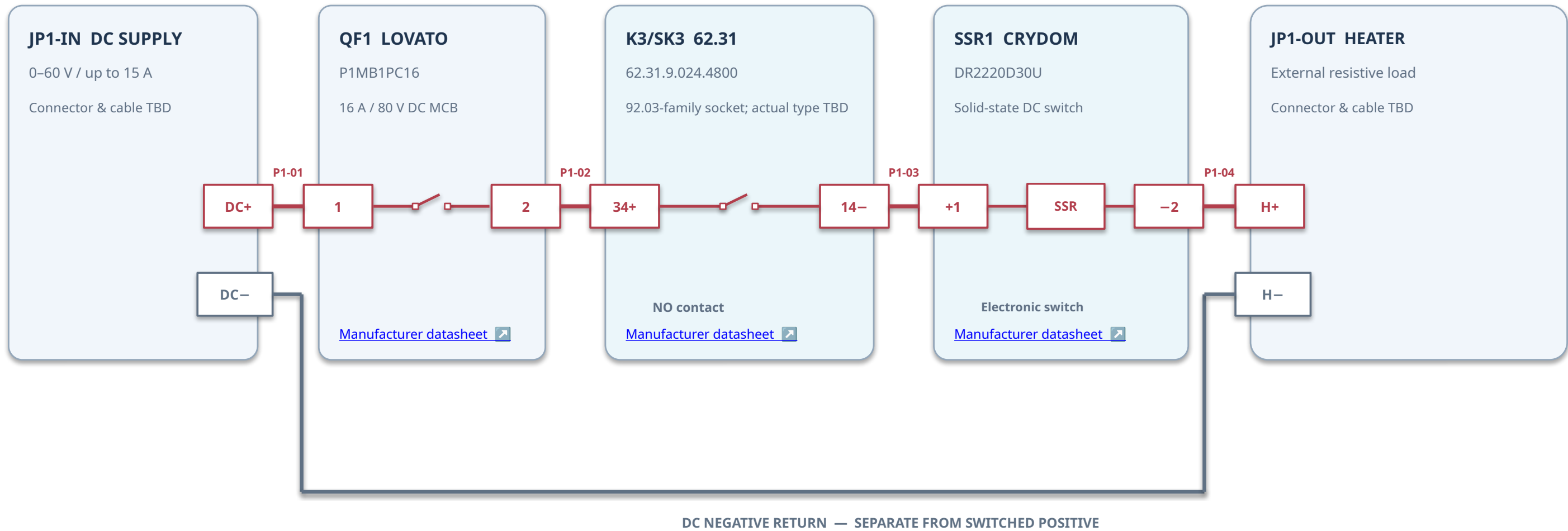
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07 / CHANNEL 1 / COMPLETE DC HEATER POWER LOOP

External 0–60 V DC supply, breaker, polarity-sensitive Finder DC relay, Crydom SSR and direct return.

Switched positive
Separate DC– return

INDEPENDENT HEATER SUPPLY / 15 A MAX DESIGN



Finder terminal 14 (–) and SSR load –2 remain in the POSITIVE conductor — neither is the supply 0 V. Breaker coordination, socket/contact derating and SSR heat dissipation require design approval.

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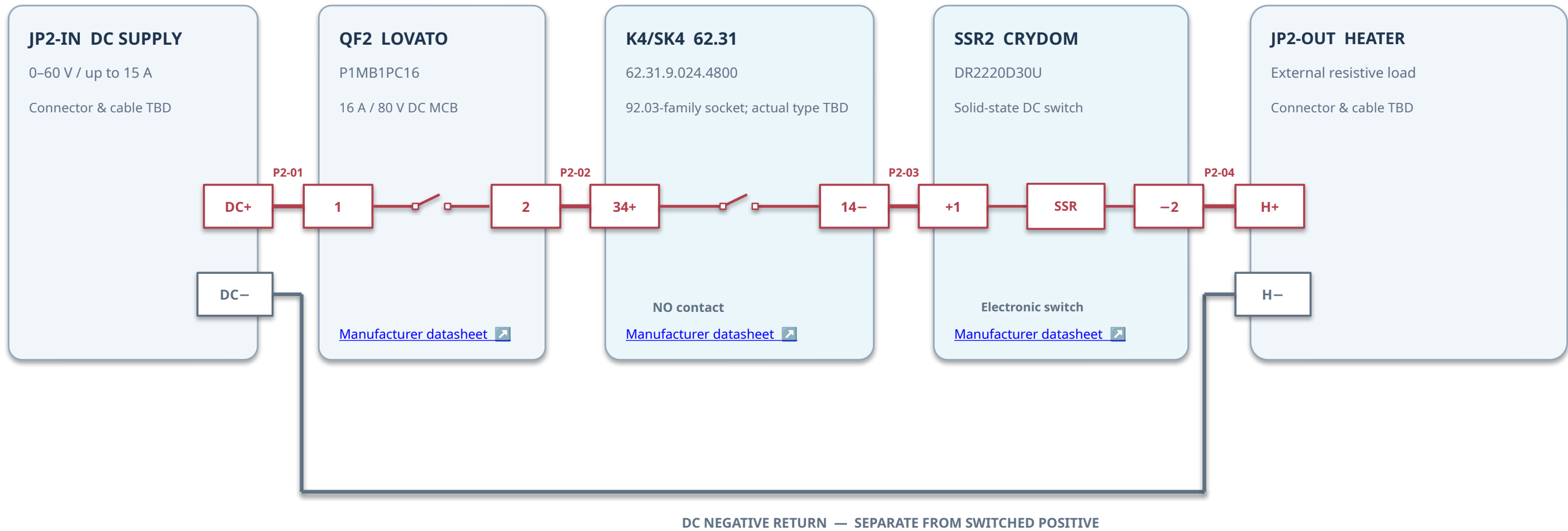
Finder contact 34 (+) → 14 (–) and SSR load +1 → –2 are both in the POSITIVE current path.

08 / CHANNEL 2 / COMPLETE DC HEATER POWER LOOP

External 0–60 V DC supply, breaker, polarity-sensitive Finder DC relay, Crydom SSR and direct return.

Switched positive
Separate DC– return

INDEPENDENT HEATER SUPPLY / 15 A MAX DESIGN



Finder terminal 14 (–) and SSR load –2 remain in the POSITIVE conductor — neither is the supply 0 V. Breaker coordination, socket/contact derating and SSR heat dissipation require design approval.

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Finder contact 34 (+) → 14 (–) and SSR load +1 → –2 are both in the POSITIVE current path.

09 / CONNECTION SCHEDULE / MAINS + 24 V DISTRIBUTION

Functional point-to-point net destinations for the component-port diagrams (not a physical ferrule/cable schedule).

TERMINAL-LEVEL REFERENCE / MAINS AND 24 V

AC01	J1 switched fused L	→	X1:L bus
AC02	J1 switched N	→	X1:N bus
AC03	J1:PE	→	X1:PE + chassis bonds
AC04	X1:L / N / PE	→	PS1:C1 / C2 / C3
AC05	X1:L → S1-A:13/14	→	E1:11 (L)
AC06	X1:N bus	→	E1:12 (N)
AC07	X1:L → S2-A:13/14	→	E2:11 (L)
AC08	X1:N bus	→	E2:12 (N)
DC01	PS1:A1 +Vo	→	X2:+24 V shared
DC02	PS1:A2/A3 –Vo	→	X2:0 V shared
DC03	X2:+24 → S1-B NO	→	X3:CH1 gated +24
DC04	X2:+24 → S2-B NO	→	X4:CH2 gated +24
DC05	X2:0 V shared	→	X3 / X4 returns

Required before wiring: J1 output tabs; enclosure PE point; X1–X4 actual stock numbers and jumpers; mains and 24 V fuse values.

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Any X1–X4 numbers are logical net references until actual terminal blocks/jumpers are documented.

10 / CONNECTION SCHEDULE / CONTROLS + HEATER

Both channels follow equivalent functional nets; this summary complements the illustrated component-port sheets.

TERMINAL-LEVEL REFERENCE / CHANNELS 1 AND 2

ENABLE / EACH CH	X3/4:+24 → Finder 13.61 power & 11; button C. X2:0V → Finder supply return, SK3/4:A2 and EAO LED—.
MOMENTARY INPUT	EAO SB1/2:NO → Finder K1/2:3 impulse; EAO C uses channel-gated +24 V.
FINDER OUTPUT	K1/2:14 (NO) → Finder 62.31 SOCKET SK3/4:A1 and EAO LED+; 11 COM fed from gated +24 V.
THERMOCOUPLE	Type K sensor (+) → E1/E2:6; sensor (—) → E1/E2:5.
OMRON / WEIDMÜLLER	E1/E2 SSR pulse terminals 1 (+),2 (—) → W1/W2 A1 (+),A2 (—).
WEID / SSR DRIVE	Gated +24 → SSR+3 AND activity HL+; SSR—4 AND activity HL— → W:13; W:14 → 0V.
DC POSITIVE	Supply DC+ → Lovato 1→2 → Finder 62.31 contact 34 (+)→14 (—) → SSR +1→—2 → heater+.
DC RETURN	Heater— → matching external DC supply—; Finder 14 and SSR —2 are NOT DC—.
DC COIL	Finder 62.31 uses socket SK3/4: coil A1/A2, contact 34(+)/14(—). Actual 92.03 suffix and suppressor TBD.

These are net-level circuit proposals, NOT numbered physical wires. Final wire IDs, conductor sizes, terminations and current ratings remain to be assigned.

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The Finder 13.61 power-up OFF state, switch actual terminals and DC protection must still be verified.

11 / MANUFACTURER DOCUMENTS & RELEASE CHECKS

Clickable component documents are embedded inside each named component block throughout the PowerPoint.

COMPONENT REGISTER / TECHNICAL REVIEW

Schurter DD11.0111.1110	Datasheet 
Schneider XB5AD23 ×2	Datasheet 
EAO 82-4151.1134 ×2	Datasheet 
Finder 62.31.9.024.4800 ×2	Datasheet 
Crydom DR2220D30U ×2	Datasheet 

Mean Well XDR-120E-24	Datasheet 
Omron E5CC-TQX3A5M-000 / -003	Datasheet 
Finder 13.61.0.024.0000 ×2	Datasheet 
Weidmüller 8950770000 ×2	Datasheet 
Lovato P1MB1PC16 ×2	Datasheet 

[HL1/HL2 specified: RS PRO 130-1086 yellow LED, 24 V DC, max 20 mA, IP67; 14 mm mounting hole.](#)

REMAINING DESIGN-RELEASE BLOCKERS

01	Finder 13.61 must remain OFF after loss and restoration of 24 V; prove minimum interruption and button held states.
02	Confirm physical X1–X4 blocks, Schneider second NO contacts, J1 outlet tabs and actual Finder 62.31 sockets.
03	Verify 15 A DC continuity ratings, breaker/source fault coordination, cable size and connector ratings.
04	Validate SSR heat sink, W1/W2 100 mA output (SSR+LED 35 mA max calculated), PE and emergency disconnection.
05	Independent safety design review and pre-energisation electrical/function tests by a suitably competent person.

[Finder 92.03-series socket datasheet \(actual fitted socket still unverified\)](#) 

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Manufacturer sources are reference points, not proof that the integrated design has passed electrical safety review.