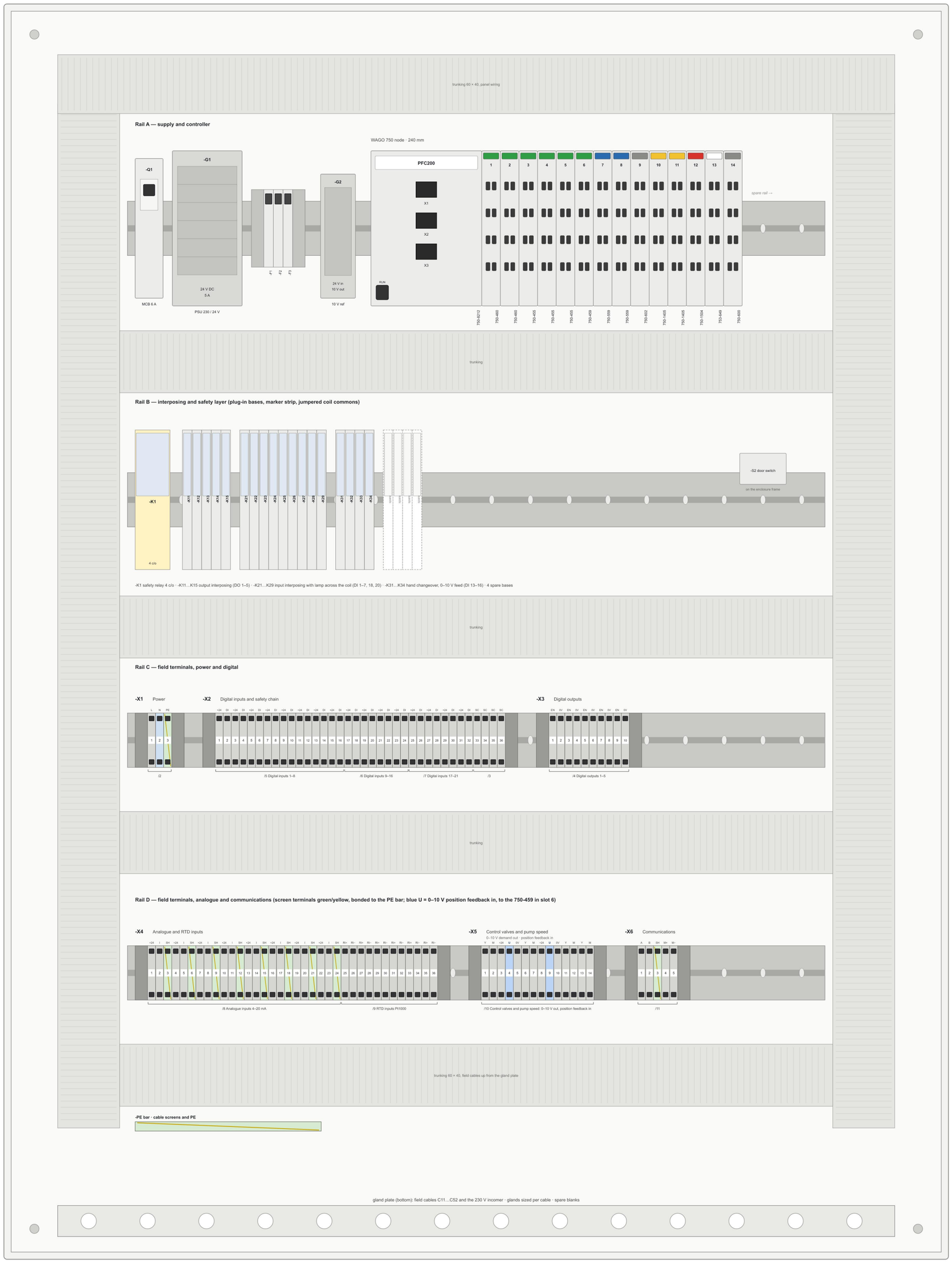
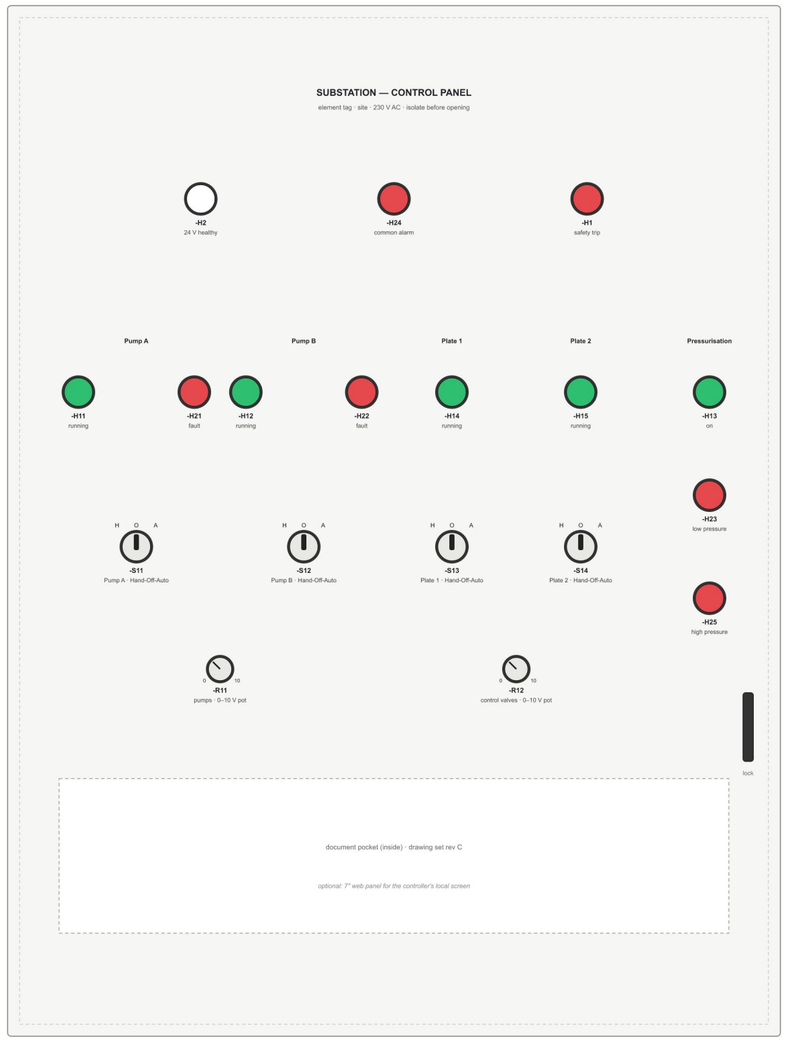
Standard substation element — control panel general arrangement

Backplate of a 600 × 800 × 250 mm wall enclosure, front view, scale 1:1 at 3 px/mm · generated from the same point list as the wiring schematic (rev B) · 8 November 2026 · indicative

Component widths are catalogue-typical; confirm against the chosen makes. Tags, terminal numbers and sheet references match the schematic exactly.



Door, outside face (scale 1:2)



Device key (from the schedule, sheet 13)

-F1	2 A, +24S controller system supply	/2.3
-F2	6 A, +24F field supply, relays, lamps	/2.5
-F3	2 A, actuator power +24F–A	/2.7
-G1	24 V DC 5 A power supply	/2.1
-G2	10 V DC reference module for the manual setters, 24 V DC in, DIN rail	/10.5
-H1	red, safety trip	/3.3
-H2	white, 24 V healthy	/2.8
-H11	green, Pump A running	/5.1
-H12	green, Pump B running	/5.3
-H13	green, PU on	/5.5
-H14	green, Plate 1 running	/7.2
-H15	green, Plate 2 running	/7.4
-H21	red, Pump A fault	/5.2
-H22	red, Pump B fault	/5.4
-H23	red, PU low pressure	/5.6
-H24	red, Common alarm	/4.5
-H25	red, PU high pressure	/5.7
-K1	Safety relay, 4 c/o contacts, 24 V DC coil, DIN plug-in base	/3.1
-K11	Interposing relay 2 c/o 24 V DC · Pump head A enable	/4.1
-K12	Interposing relay 2 c/o 24 V DC · Pump head B enable	/4.2
-K13	Interposing relay 2 c/o 24 V DC · Plate 1 secondary isolation valve	/4.3
-K14	Interposing relay 2 c/o 24 V DC · Plate 2 secondary isolation valve	/4.4
-K15	Interposing relay 2 c/o 24 V DC · Common alarm	/4.5
-K21	Interposing relay 2 c/o 24 V DC · Pump head A run	/5.1
-K22	Interposing relay 2 c/o 24 V DC · Pump head A fault	/5.2
-K23	Interposing relay 2 c/o 24 V DC · Pump head B run	/5.3
-K24	Interposing relay 2 c/o 24 V DC · Pump head B fault	/5.4
-K25	Interposing relay 2 c/o 24 V DC · PU on	/5.5
-K26	Interposing relay 2 c/o 24 V DC · PU low pressure	/5.6
-K27	Interposing relay 2 c/o 24 V DC · PU high pressure	/5.7
-K28	Interposing relay 2 c/o 24 V DC · Plate 1 secondary valve open	/7.2
-K29	Interposing relay 2 c/o 24 V DC · Plate 2 secondary valve open	/7.4
-K31	Changeover relay 1 c/o 24 V DC · in Hand: pump speed from -R11	/6.5
-K32	Changeover relay 1 c/o 24 V DC · in Hand: pump speed from -R11	/6.6
-K33	Changeover relay 1 c/o 24 V DC · in Hand: control valve from -R12	/6.7
-K34	Changeover relay 1 c/o 24 V DC · in Hand: control valve from -R12	/6.8
-Q1	6 A type C incomer MCB	/2.1
-R11	Potentiometer 10 kΩ linear, 22 mm door mounted, 0–10 V across -G2 · common to both pump head	/10.6
-R12	Potentiometer 10 kΩ linear, 22 mm door mounted, 0–10 V across -G2 · common to both primary c	/10.7
-S11	Hand-Off-Auto selector, 2 pole · Pump head A enable	/4.1
-S12	Hand-Off-Auto selector, 2 pole · Pump head B enable	/4.2
-S13	Hand-Off-Auto selector, 2 pole · Plate 1 secondary isolation valve	/4.3
-S14	Hand-Off-Auto selector, 2 pole · Plate 2 secondary isolation valve	/4.4

Notes

- Terminal strips are grouped by signal family (-X1 power, -X2 digital inputs and safety chain, -X3 digital outputs, -X4 analogue and RTD, -X5 control valves and pump speed, -X6 communications); the bracket under each run names the schematic sheet its terminals belong to.
- Screen terminals (green/yellow, diagonal stripe) take the cable screens of -X4, -X5 and -X6 and are bonded to the PE bar at this end only. -X1:N is light blue. The small label above each terminal is its function: +24 supply, DI / I / RIs / U inputs, Y / EN outputs, M / 0V returns, SC safety chain, SH screen.
- The two 0–10 V inputs are the valve position feedbacks on -X5:4 and -X5:8 (blue, U), wired with each actuator's own cable and read on the 750-459 in slot 6; the 4–20 mA and RTD inputs are on -X4.
- Door: a Hand-Off-Auto selector for each pump head and each plate, one manual 0–10 V setter for the pumps (-R11) and one for the control valves (-R12): 10 kΩ potentiometers across the 10 V reference -G2 on rail A. In Hand the changeover relay -K31…K34 feeds the pump or primary control valve from the setter instead of the controller; a plate in Hand also holds its secondary isolation valve open. Plate running lamps follow the valve-open end switch. The pressurisation unit has lamps only: on, low pressure, high pressure.
- Relays on plug-in bases with a common marker strip; coil commons on 0VF jumpered along the base row. Four spare bases are fitted so a channel can be added without re-spacing.
- Mains to the pump and the pressurisation unit is not in this panel. The panel takes one 230 V radial (-Q1) and makes 24 V DC (-G1) for the controller (-F1), the field layer (-F2) and the actuators (-F3).
- Terminal count: 104 across six strips. Rail lengths and the enclosure size follow from the strips and the node; a larger station grows the rails or takes an 800 × 1000 enclosure.

Heatweb Solutions Ltd	Standard substation element — control panel wiring
Panel general arrangement Backplate and door · companion to the 13-sheet schematic Indicative. Not for construction.	Sheet **GA 1 / 1** · Rev **C** 8 November 2026 · generated · RH