

S04 / IMPLEMENTATION

Heating / pump control integration

Define control ownership before integrating data, HMI and supervision

AI concept scene, not a customer-site photograph. Final configuration is project-specific.

Customer need and Phase-1 scope

Project design reference aligned with the YZW8661 website example

Customer context

For heating substations, circulation pumps and control-panel retrofits. Consolidate temperature, pressure, heat and equipment states while retaining local automatic control, manual operation and protective functions.

Pilot assumption: one plant room and one panel. Point count, actuators, I/O and controller are project-defined. The complete YZW8661 V2.0 specification is not present in this evidence set; no quantities are inferred.

01 Define measurements, actuators, modes and local / remote authority.

02 Integrate edge host, controller / I/O, HMI and network from an approved BOM.

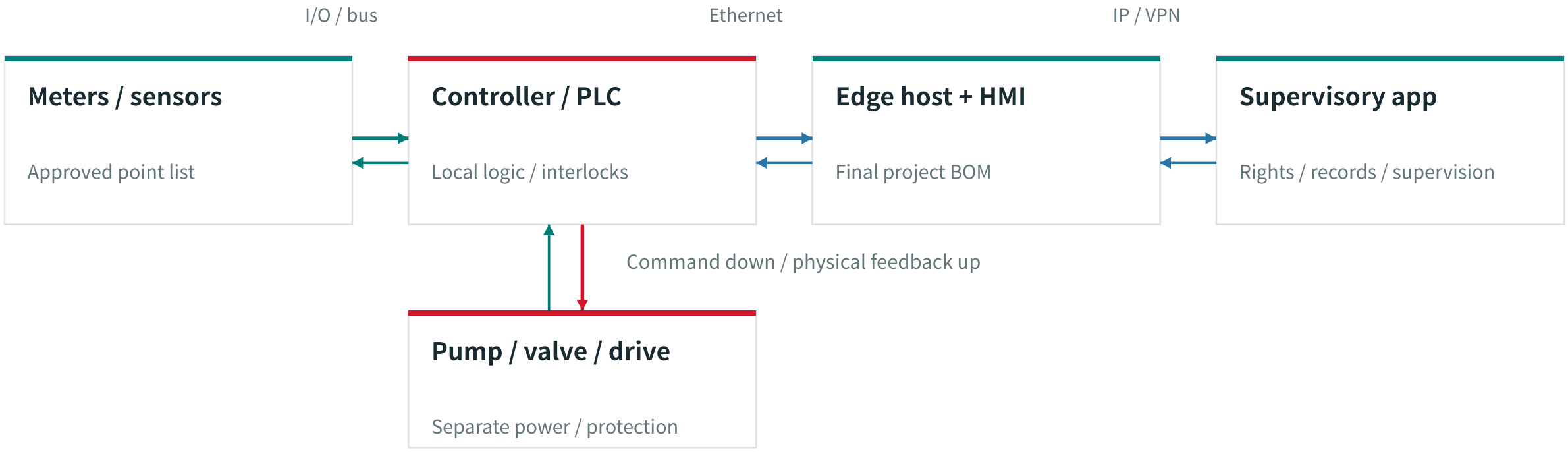
03 Deliver drawings, control sequence, factory tests and site handover.

Explicit exclusions

This is a reference design, not a deployed performance case. A gateway is not implicitly a safety PLC, inverter or motor driver. No savings, heating-area or closed-loop performance claim is made.

System architecture and ownership

Every link has a defined medium; field devices and applications are project equipment.



Equipment and selection conditions

Pilot quantities only. Separate standard items, project options and customer equipment in the final BOM.

Project integration

The website YZW8661 example combines field acquisition, edge applications, HMI, I/O expansion and cabinet integration.

The website defines final BOM, point list, drawings and acceptance as project deliverables; I/O counts and ratings are agreed per project.

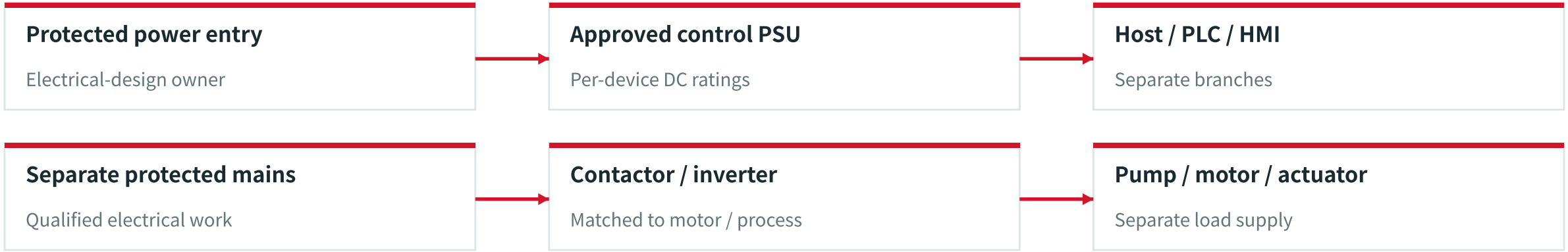
An existing PLC may retain control ownership while the edge layer provides agreed data, UI and remote supervision.

Host, power, I/O modules, drives and cabinet ratings are unresolved; they cannot be inferred from an illustration.

Component	Qty	Owner	Selection / condition
Edge host / connectivity	TBC	Agreed BOM	Runtime, protocols and application needs
PLC / controller and I/O	TBC	Agreed BOM	Keep existing or select; define safety owner
HMI / operator controls	TBC	Agreed BOM	Mode and local / remote authority
Field instruments	Point list	Agreed BOM	Range, accuracy, power and interface
Drives / actuators	Per plant	Agreed BOM	Voltage, signal, interlocks and feedback
Panel / power / protection	Approved	Electrical team	Segregation, heat, earth and FAT

Power and wiring boundaries

Boundary diagram, not a terminal construction drawing. Qualified personnel use approved electrical plans.



Top: control power. Bottom: load power. Gateway outputs do not replace the drive circuit.

01 Design separate mains drive and low-voltage circuits. Qualified personnel specify protection, contactors, inverters and motors.

02 Confirm DC voltage individually for host, PLC, HMI and sensors in the final BOM; an illustrative 24V is not a universal rating.

03 Verify dry / wet contacts, source / sink, isolation and analogue ranges. Do not connect a generic DO directly to a pump motor.

04 Document emergency stop, overload, dry-run and pressure protection ownership: hardwired, PLC or external device.

Installation and site work

The scene illustrates the environment only. Add actual installation and cable photographs from the image brief.



AI concept scene; not a construction drawing or delivered-site photo.

01 Keep panel service clearance and segregate communication, control and power areas. Match terminals and earth bars to drawings.

02 HMI shows mode, authority, requested state and actual feedback, not only a green run icon.

03 Process engineering confirms sensor and valve locations; photographs should show their real relationship to panel and pumps.

S04-H2 installation set + S04-H3 wiring set: capture after real site implementation.

Workflow, platform and security

A delivered message is not proof of equipment state. Diagnose from the last verified layer.

1 **Read plant**

Collect measurements, run / fault states and quality from the point list.

2 **Arbitrate modes**

Approve manual, local auto and remote priority. Local protection takes precedence.

3 **Issue command**

Check authority, interlocks and limits before the actual controller / drive acts.

4 **Verify outcome**

Separate command receipt, actuator feedback and process response. Test the agreed cloud-loss policy.

Platform and operating conditions

- Separate local controller and platform roles. Process owner approves hold, local takeover or safe-stop behaviour when the platform is unavailable.
- Use Node-RED or other apps only on an approved host and runtime; not every model provides the same stack.
- Scope remote writes and retain change evidence. Telemetry delivery is not proof of pump / valve action.

Commission in order and keep evidence

Validate one layer at a time before outputs or remote changes.

Task	Pass evidence	First checks on failure
01 Freeze requirements	Signed point list, sequence and ownership.	No output testing with undefined safety scope.
02 Drawings / BOM	Devices, power, terminals and I/O match.	Resolve discrepancies before wiring.
03 Factory test	Simulate inputs before permitted outputs.	Isolate real loads during logic development.
04 Point checks	Verify sensors, direction and feedback.	Stop and inspect any reversed action.
05 Modes / interlocks	Approved authority and protection matrix works.	Site team executes safe protection tests.
06 Failure / handover	Network, power and sensor-loss policy passes.	Check process safety before restoration.

Acceptance and ownership

Agree duration, thresholds, samples and sign-off owner before testing. These are acceptance categories.

Test	Evidence to keep
As-built match	BOM, terminals, wire IDs and point list match hardware.
State evidence	Distinguish request, acknowledgement, physical feedback and process state.
Local priority	Takeover and interlocks work; cloud loss follows the approved sequence.
Handover	Complete FAT / SAT, backups, versions and training.

Delivery ownership

- EDGELOR: agreed equipment, applicable documentation and contracted configuration support.
- Customer / integrator: protocols, platform, accounts, licences, thresholds and publication rights.
- Installer / engineers: electrical work, mounting, protection, actual commissioning and joint sign-off.

Handover and open engineering items

Suitable for project discussion and a website reference solution. Resolve the open items before construction.

Handover and diagnosis

Deliver signed requirements, BOM, layout, schematics, terminal plan, I/O list, control sequence, mode / interlock matrix, software and backups, FAT / SAT and O&M. Until genuine delivery evidence exists, publish only as a design example.

Confirm before implementation

01 Full project specification, final controller and edge host.

02 I/O, voltages, drives and safety ownership.

03 Cabinet rating, heat, electrical and process conditions.

04 Permitted commands, loss policy and test boundaries.

Evidence (physical PDF pages)

/systems/heating-control/ • 2026-11-06

/solutions/local-control/ • 2026-11-06

Full YZW8661 V2.0 specification not in evidence set.

Detailed paths and source hashes: companion evidence register.

Related website category

www.edgelor.com