Dairy Instrumentation Engineer

Engineering and maintenance

Job title	Dairy Instrumentation Engineer
Department	Engineering and maintenance
Reports to	Engineering Manager (or Electrical and Automation Manager on larger sites)
Direct reports	None
Location	*[To be confirmed by the employer]*
Contract type	*[Permanent / fixed-term / other]*
Salary and benefits	*[To be confirmed by the employer]*

Job purpose

Calibrates, maintains and repairs the temperature, pressure, flow, level, pH, conductivity and turbidity instruments on pasteurisers, UHT plants, CIP sets, separators, evaporators, dryers and fillers. Keeps the instrument register and calibration records up to date, fault finds from sensor to PLC input, and makes sure critical instruments such as the pasteuriser holding tube temperature sensor and flow diversion valve are proven accurate and fully recorded for food safety audits.

Key responsibilities

Calibration and maintenance

- Calibrate temperature, pressure, flow, level, pH, conductivity and turbidity instruments on pasteurisers, UHT plants, CIP sets, separators, evaporators, dryers and fillers to the schedule
- Use traceable reference standards, keep their certificates in date and store them so they stay accurate
- Treat any reading outside its tolerance as a failed calibration: record the as-found reading, report it to the Engineering Manager and quality before you adjust or replace the instrument, and record the as-left reading once it is back in tolerance
- Keep the instrument register and calibration schedule up to date in the maintenance system, including new, moved and removed instruments
- Replace and commission transmitters, control valves and positioners, and prove them before handing back to production
- Do planned maintenance on sensors, control valves and positioners and watch for drift between calibrations
- Keep spares for critical instruments on site and tell the Engineering Manager when stock runs low

Pasteuriser and critical control points

- Calibrate and check the pasteuriser holding tube temperature sensor, flow diversion valve and chart recorder or data logger, which monitor and control the pasteurisation critical control point, at the frequency set in the food safety plan
- Test that the flow diversion valve diverts when the holding tube temperature drops below the set point and that the recorder shows the diversion
- Compare the chart recorder or data logger against a reference thermometer and record the result

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- When a critical instrument fails calibration, tell quality straight away so that product made since the last good check can be reviewed before release
- Keep calibration records for critical instruments complete and easy to find, as they are checked at food safety audits
- Calibrate the pressure instruments that prove pasteurised product stays at higher pressure than raw product in the regeneration section
- Check weighing and filling instruments on fillers and checkweighers, and support legal metrology verification as required where the job is based

Fault finding and control systems

- Fault find instrument loops from the sensor, through the cabling and junction boxes, to the PLC input card, working with the Automation Engineer
- Carry out loop checks on new and repaired instruments and record the results
- Work in control panels and on field wiring under the permit to work and isolation system, proving dead before starting
- Configure transmitters, positioners and smart devices and record the settings
- Keep instrument drawings, loop diagrams, I/O lists and data sheets current after every change
- Support shift engineers with instrument faults, including call-out cover where the site requires it

Hygienic design, projects and training

- Fit instruments to hygienic standards: correct process connections and seals, no dead legs, and sensors placed where they read true and are cleaned by CIP
- Check that instruments, seals and cable glands are rated for CIP temperatures and chemicals and for wet washdown
- Specify instruments for projects and small works, and commission them with the project team
- Train technicians and operators on instrument care, such as handling probes, cleaning sensors and reporting suspect readings
- Review instrument faults and drift trends and suggest changes that cut repeat failures

Qualifications and experience

Essential

- Recognised electrical, instrumentation or control engineering qualification, such as an apprenticeship, HNC or equivalent
- Experience calibrating and maintaining process instruments in a food, dairy or similar regulated plant
- Working knowledge of 4-20 mA loops, transmitters, control valves and PLC inputs and outputs
- Able to read and update loop diagrams, P&IDs and electrical drawings
- Understanding of calibration records, traceability and what a failed calibration means for product
- Electrical safety and permit to work training, as required where the job is based

Desirable

- Experience with pasteurisers, UHT plants or CIP systems and their critical control instruments
- Knowledge of hygienic design standards for instruments and fittings
- Experience with HART or similar configuration tools and calibration management software
- Experience with pH, conductivity and turbidity instruments used for CIP control and product and water interface detection
- Hazardous area (CompEx or equivalent) certificate, as required where the job is based
- Basic PLC fault finding skills, such as reading input and output status on the controller
- Food hygiene certificate, as required where the job is based

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Skills and attributes

- Methodical and precise
- Honest about results, including failed calibrations
- Clear, accurate record keeping
- Logical fault finding
- Works safely around live panels and hot process
- Explains instruments simply to operators and technicians
- Plans work around production and CIP windows

Measures of success

- Calibrations completed on schedule with no overdue critical instruments
- Complete, traceable calibration records that pass food safety audits
- Every failed calibration recorded, reported and followed up
- Instrument-related downtime within the agreed target
- Instrument register and loop diagrams up to date after every change
- New and replaced instruments commissioned right first time
- No accidents, injuries or electrical safety breaches

Working conditions and safety

Mainly day work on a production site, with call-out or shift cover for instrument faults where the site requires it. The work involves climbing to instruments on tanks, pipework and dryers, working in control panels that may contain live parts, under isolation, and working in hot, wet or noisy areas near moving machinery and CIP chemicals; PPE and training are provided.

- Follow health and safety rules and safe systems of work, and wear the correct PPE
- Follow food safety, hygiene, HACCP and quality procedures at all times
- Report hazards, accidents, near misses and concerns promptly

This job description outlines the main duties of the role. It is not a complete list, and the employer may update it as the business changes, in consultation with the jobholder.

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