

PLC commissioning checklist

A field-tested sequence for taking a PLC-controlled machine or line from power-off to signed-off production. Work top to bottom; never skip the power-off I/O checks.

1 · Before power-up

✓	Check	Notes / acceptance
☐	Drawings, I/O list and program revision matched to the panel as built	Rev no. _____ Date _____
☐	Panel free of swarf, offcuts and loose hardware; glands sealed	Visual + torque audit
☐	Earth continuity door-backplate-enclosure-PE bar	< 0.1 Ω
☐	Insulation resistance on power circuits with electronics isolated	> 1 M Ω @ 500 V DC
☐	Supply voltage, phase rotation and PSU output confirmed	24 V DC $\pm$ 5 %, rotation L1-L2-L3
☐	Fuse / MCB ratings match schematic; spares fitted	Record deviations
☐	Field wiring ferrules and tag numbers verified against I/O list	100 % of terminals

2 · Safety system

✓	Check	Notes / acceptance
☐	E-stops mapped, each one tested individually to stop category	Cat 0 / Cat 1 _____
☐	Guard interlocks and light curtains force-tested (blocked beam)	Response time _____ ms
☐	Safety relay / safety PLC reset logic requires deliberate action	No auto-restart
☐	Drive STO wiring proven — motor cannot restart with STO active	Both channels tested
☐	Risk assessment and PL/SIL verification signed	Assessor _____

3 · I/O verification (power on, actuators isolated)

✓	Check	Notes / acceptance
☐	Every digital input forced at the field device, seen in PLC tags	DI count _____ / _____

✓	Check	Notes / acceptance
☐	Every digital output pulsed from the PLC, LED and field confirmed	DO count ____ / ____
☐	Analogue inputs verified at 0 %, 50 %, 100 % with a loop calibrator	Error < 0.5 % FS
☐	Analogue outputs verified to positioner / VSD reference	4-20 mA at 4, 12, 20
☐	Encoder / counter direction and scaling proven with a known move	Pulses per unit ____
☐	Network nodes online, no duplicate addresses, diagnostics clear	Profinet/EtherNet-IP ____

4 · Drives and motion

✓	Check	Notes / acceptance
☐	Motor nameplate parameters entered; auto-tune completed	Save parameter file
☐	Direction of rotation confirmed uncoupled, then coupled	Bump test
☐	Accel / decel ramps and current limits set to mechanical limits	Record final values
☐	Overload, stall and thermal protections tested and logged	Trip class ____
☐	Brake control and drop-out timing checked on vertical axes	No load drop

5 · Program and HMI

✓	Check	Notes / acceptance
☐	Manual / jog mode operates each actuator with interlocks active	Per device
☐	Auto sequence dry-run without product; step timing recorded	Cycle time ____ s
☐	Alarm list complete: text, priority, first-out latching	Test 100 % of alarms
☐	Recipe download, changeover and parameter limits validated	Out-of-range rejected
☐	Retentive data, clock sync and PLC/HMI backups taken	Two copies, off-site

6 · Performance and handover

✓	Check	Notes / acceptance
☐	Wet / product run at design rate for an agreed period	Rate ____ /min, ____ h
☐	Reject, downtime and OEE data captured from the line	Baseline OEE ____ %
☐	Punch list agreed with owner, with dates and responsibilities	Attach list
☐	Operator and maintenance training delivered and signed	Attendees ____
☐	As-built drawings, source code, licences and manuals handed over	Include backup media

Sign-off

Role	Name	Signature	Date
Commissioning engineer			
Plant / production owner			
Safety representative			