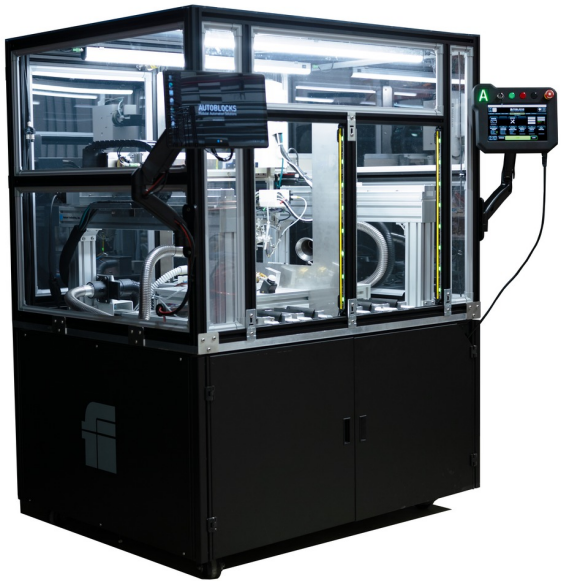
BUILT ON AUTOBLOCKS · CASE STUDY

DUAL ZONE ROBOTIC SOLDERING CELL

2× productivity at delivery. And it kept getting better.

MISSION-CRITICAL ELECTRONICS · COMMERCIAL BLASTING INDUSTRY



2×

PRODUCTIVITY VS. SINGLE-STATION BASELINE

+2

TRIMMING STATIONS ADDED BY CUSTOMER POST-DEPLOYMENT

1

CONTROL BLOCK RUNS THE ENTIRE CELL

Two work zones. One Control Block. Operators load one zone's fixture while the gantry solders the other — continuous production with no idle time. Built to scale with the customer's process, not freeze with it.

The Challenge / The Solution / The Outcome

DUAL ZONE
ROBOTIC SOLDERING
CELL

THE CHALLENGE

The customer manufactures mission-critical electronic components for the commercial blasting industry — products where every solder joint is life-safety critical and every batch must be fully traceable. A growing mix of product variants and rising volume put pressure on their existing single-station soldering process: operators waited on the cycle to finish before they could load the next fixture, and reconfiguring for a new part number meant engineering escalation and downtime.

They needed a higher-throughput cell that could keep pace with mixed-volume demand **without** doubling control infrastructure or sacrificing the audit-grade rigor their industry requires.

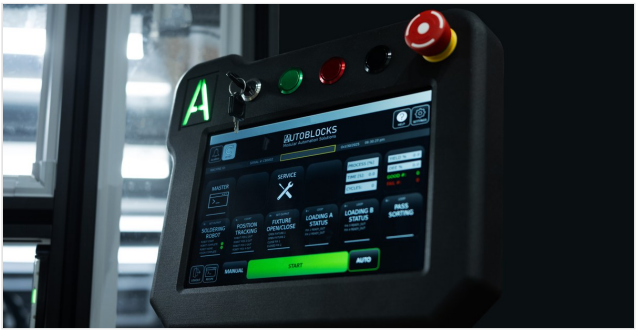
THE SOLUTION

A dual-zone robotic soldering cell built on the Autoblocks Control Block, with a **Japan Unix precision soldering gantry** handling iron-tip work. Two independent work zones alternate: while the gantry solders one zone, the operator unloads and reloads the other. Indexing, part-presence sensing, fume extraction, status indication, and safety circuits all run from a single Control Block — no separate PLC, no third-party safety controller, no glue code between vendors.

The entire cell is programmed in **AutoCode** — Autoblocks' 27-command human-auditable language — so recipe changes happen at the Pendant in minutes, not engineering sprints.

THE OUTCOME

2× productivity against the single-station baseline at delivery. Recipe changes for new part variants happen at the Pendant — no engineering escalation. But the part most automation platforms can't deliver came after the cell shipped: **the customer's own engineering team added two integrated trimming stations** to the cycle — pneumatically actuated, with their own part-presence sensors — and wired them into the existing AutoCode program. No vendor callback. No re-commissioning. The trimming stations execute as native steps in the same cycle that drives the soldering gantry.



CELL ARCHITECTURE

- **Controller:** Autoblocks Control Block — motion, logic, safety, HMI in one
- **Robot:** Japan Unix precision soldering gantry, robotic iron-tip
- **Zones:** Dual alternating work zones, fixture-pinned
- **Sensing:** Part-presence at each fixture, recipe-gated
- **Fume Extraction:** Integrated, cycle-interlocked
- **HMI:** 10.1″ Autoblocks Pendant
- **Programming:** AutoCode (27-command, human-auditable)
- **Safety:** Keyence GS door interlocks & light curtains, 3-color tower
- **Customer-added:** Pneumatic trimming stations (×2)

INTEGRATION PARTNER

JAPAN UNIX

THE PLATFORM DIFFERENCE

Most automation cells are **frozen at delivery**. Built on Autoblocks, they keep evolving — the customer's team extended this cell themselves, in production, without a vendor callback.

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