

# ADD-ON SOLUTION MODULE: LINE BALANCE OPTIMISATION CONTROL™

Automatic optimisation and control of machine restarts and recovery speeds for performance gains of between 2-5%.

**LBO**™  
CONTROL

LBO Control™ is a supervisory line control module that leverages the power of LineView™ to optimise line balance.

LineView™ monitors the entire line and, based on the relationship between the core machines, LBO Control™ automatically optimises restart times and recovery speeds after a stop. Expect performance gains of between 2-5%.



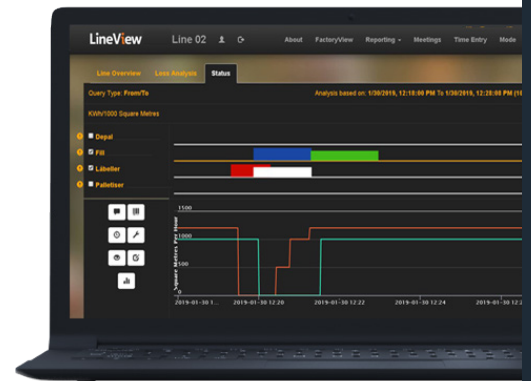


LBO Control™ optimises the restart times on core machines (typically filler, labeller, packer) to accelerate restart and recovery after downtime events.

The goal is to maintain the Critical Machine/ Bottleneck in a running state at its rated speed.

When upstream or downstream equipment fail, maintain the Critical Machine in a running state for as long as possible.

When the Critical Machine stops, restart it as quickly as possible and optimise recovery time.



LBO Control™ works in two ways:

- ✓ **Quick Restart (QR)**  
Reduce back up (buildback) time by 10-120 seconds per downtime event within each zone (between each machine pair). Maximum benefits are gained on lines running between 50-80% efficiency (as they tend to have more minor stops).
- ✓ **Recovery Time (RT)**  
Optimise the recovery speed of machines, ensuring that after a stoppage the dynamic accumulation on the conveyor recovers as quickly as possible, allowing for another stoppage without stopping the Critical Machine/Bottleneck.

Typical examples of live implementations:

**QR example improvement:**

2% efficiency increase (38, 22 & 29 minutes in each 24 hour period, average 30 minutes more production per day)

**RT example improvement:**

Optimising recovery speed has reduced recovery time by half, yielding a 1.5% efficiency improvement

**Pre-requisites:**

- Existing network between all PLC's
- VPN access for support
- Fully commented PLC code
- Speed v-curve exists across the line
- All machines run in full automatic mode
- LineView™ system in place

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