

Supported Metrics

OVERVIEW

The XL Production Monitor is designed to provide a wealth of information about the production asset it monitors, while automating as much of the data gathering process as possible. It simultaneously tracks shift metrics (e.g. average production rate for the shift), job metrics (e.g. average production rate for the job), as well as general metrics (e.g. the current production rate). Thus, each metric is categorized as shift-related, job-related, or general.

The production monitor includes eight modules:

- Counts
- Rates
- Cycle Times
- Production Times
- OEE
- Target
- Goals
- Process Timers

Great care was taken when designing the production monitor to make it as easy as possible to develop actionable information with minimum intrusiveness to your manufacturing process. The following table shows how XL leverages a very simple interface to your process to develop a comprehensive collection of production metrics.

You Provide...	XL Delivers...
One Sensor	Total Count, Current Rate Total, Average Rate Total, Current Cycle Time, Last Cycle Time, Average Cycle Time, Run Time, Last Run Event, Percent Run, Down Time, Last Down Event, Percent Down, Manufacturing Time, Total Time, Availability
Second Sensor	Good Count, Reject Count, Percent Good, Percent Reject, Current Rate Good, Average Rate Good, Current Rate Reject, Average Rate Reject, Quality
Takt Time	Target Count, Takt Timer, Pace Timer, Count Variance, Time Variance, Efficiency
Ideal Cycle Time	Standard Cycles, Standard Cycles Time, Slow Cycles, Slow Cycles Time, Small Stops, Small Stops Time, Performance, OEE
Goal Count	Pieces to Goal, Percent of Goal
Setup Switch	Setup Time, Last Setup Event, Percent Setup, Production Time
Time Schedule	Standby Time, Last Standby Event, Percent Standby, Remaining Time

The following table provides a quick reference to all XL Production Monitor metrics. Each metric is categorized as shift-related (S), job-related (J), or general (G).

Supported Metrics Overview

Metric	Module	Description
Availability (S, J)	OEE	Percentage of planned production time that the asset has been running.
Average Cycle Time (S, J)	Cycle Times	Average time to manufacture one piece (based only on run time).
Average Rate Good (S, J)	Rates	Average rate at which good pieces have been manufactured.
Average Rate Reject (S, J)	Rates	Average rate at which reject pieces have been manufactured.
Average Rate Total (S, J)	Rates	Average rate at which pieces (whether good or reject) have been manufactured.
Count Variance (S, J)	Target	How far ahead or behind production is running of target in terms of pieces.
Current Cycle Time (G)	Cycle Times	Time thus far for manufacturing the current piece.
Current Rate Good (G)	Rates	Rate at which good pieces are currently being manufactured.
Current Rate Reject (G)	Rates	Rate at which reject pieces are currently being manufactured.
Current Rate Total (G)	Rates	Rate at which pieces (whether good or reject) are currently being manufactured.
Down Time (S, J)	Prod. Times	Accumulated time the asset has been down.
Efficiency (S, J)	Target	How far ahead or behind production is running of target in terms of a percentage.
Good Count (S, J)	Counts	Number of good pieces that have been manufactured.
Last Cycle Time (G)	Cycle Times	Time to manufacture the last completed piece.
Last Down Event (G)	Prod. Times	Elapsed time of the most recent down time occurrence.
Last Run Event (G)	Prod. Times	Elapsed time of the most recent run time occurrence.
Last Setup Event (G)	Prod. Times	Elapsed time of the most recent setup time occurrence.
Last Standby Event (G)	Prod. Times	Elapsed time of the most recent standby time occurrence.
Manufacturing Time (S, J)	Prod. Times	Accumulated time the asset has been running or down.
OEE (S, J)	OEE	Percentage of planned production time that is fully productive.
Pace Timer (G)	Target	Count down timer to pace production, synchronized to the manufacturing cycle.
Percent Down (S, J)	Prod. Times	Percentage of time that the asset has been down.
Percent Good (S, J)	Counts	Percentage of good pieces that have been manufactured (same as Quality metric).
Percent of Goal (S, J)	Goals	Percentage of progress towards the production goal.
Percent Reject (S, J)	Counts	Percentage of reject (i.e. scrap or rework) pieces that have been manufactured.
Percent Run (S, J)	Prod. Times	Percentage of time that the asset has been running.
Percent Setup (S, J)	Prod. Times	Percentage of time that the asset has been in setup (i.e. changeover).
Percent Standby (S, J)	Prod. Times	Percentage of time that the asset has not been scheduled for production.
Performance (S, J)	OEE	Percentage of run time that is at the ideal (i.e. fastest possible) manufacturing rate.
Pieces to Goal (S, J)	Goals	Pieces left to manufacture to reach the production goal.
Process Timer 1 to 8 (G)	Proc. Timers	General purpose bidirectional timers.
Production Time (S, J)	Prod. Times	Accumulated time the asset has been in use for production (excludes standby time).
Quality (S, J)	OEE	Percentage of pieces that are considered good (same as Percent Good metric).
Reject Count (S, J)	Counts	Number of reject pieces (i.e. scrap or rework) that have been manufactured.
Remaining Time (G)	Prod. Times	Time remaining to exit the current production state (typically used for breaks).
Run Time (S, J)	Prod. Times	Accumulated time the asset has been running.
Setup Time (S, J)	Prod. Times	Accumulated time the asset has been in setup (i.e. changeover).
Slow Cycles (S, J)	Cycle Times	Number of cycles that are longer than expected, but not considered stops.
Slow Cycles Time (S, J)	Cycle Times	Accumulated time of cycles that are longer than expected, but not considered stops.
Small Stops (S, J)	Cycle Times	Number of cycles that are stops, but not long enough to be considered down.
Small Stops Time (S, J)	Cycle Times	Accumulated time of cycles that are stops, but not long enough to be considered down.
Standard Cycles (S, J)	Cycle Times	Number of cycles that fall within the expected normal variation in cycle time.
Standard Cycles Time (S, J)	Cycle Times	Accumulated time of cycles that fall within the expected normal variation in cycle time.
Standby Time (S, J)	Prod. Times	Accumulated time the asset has not been scheduled for production.
Takt Timer (G)	Target	Timer to pace production, synchronized to takt time/target count.
Target Count (S, J)	Target	Current expected count based on the takt time.
Time Variance (S, J)	Target	How far ahead or behind production is running of target in terms of time.
Timer Snapshot 1 to 8 (G)	Proc. Timers	Value of the associated process timer as captured at an earlier point in time.
Total Count (S, J)	Counts	Combined number of good pieces and reject pieces that have been manufactured.
Total Time (S, J)	Prod. Times	Accumulated time for all production states (i.e. run, down, setup, and standby).