# MEMEX

## Measuring Manufacturing Excellence

# MERLIN Tempus™

## Driving efficiencies and productivity from the shop-floor-to-the-top-floor

MERLIN Tempus offers a new generation of tools and a dynamic configurable dashboard that provides a complete view of your shop floor. Developed using state-of-the-art technologies, MERLIN Tempus delivers green-light metrics and analytical capabilities to effectively reduce downtime while increasing throughput and profits.

## OEE - THE CRITICAL METRIC

OEE (Overall Equipment Efficiency) breaks the performance of a manufacturing unit into three separate measurable components: Availability, Performance and Quality. The OEE formula is (% Availability)*(% Performance)*(% Quality).

OEE may be implemented at individual work centre level, or rolled up to department level, plant level, and enterprise level. OEE metrics allow manufacturing teams to drill down and analyze very specific aspects of the manufacturing process that can be targeted for improvement, such as a particular shift, part numbers, or many other parameters. With 85% OEE considered as world-class, many manufacturers have set this as their OEE target.

## MERLIN VALUE PROPOSITION

MERLIN offers **Manufacturing** analytics that enable effective **Execution** of continuous improvement initiatives in **Real-Time**, allowing for the entire plant operations to be **Lean**. MERLIN creates opportunity for a dramatic increase in OEE based on accurate Real-Time **Information** collected using a true shop-floor-to-top-floor communication **Network** connecting all machines, old and new.

Armed with the ability to demonstrate increasing OEE and continuous improvement of plant capacity manufacturers can build and further solidify the coveted trusted supplier relationship.
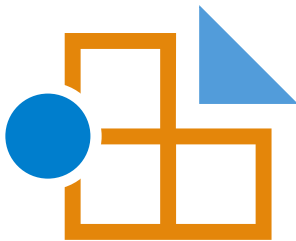
## BENEFITS

- Enjoy whole shop floor visibility
- Improve overall efficiencies across the enterprise
- Find the "Hidden Factory" by uncovering the unused machine capacity
- Improve team performance and foster cooperation across the enterprise
- Reduce chronic down-time, improving productivity
- Generate higher levels of throughput and profits
- Empower your LEAN initiatives
- Build continuous improvement initiatives based on accurate, actionable data
- Uncover trends and correlations to improve workflow

- Validate flowlines and cell throughput
- Identify and improve changeover and setup times
- Identify constraints within value-streams and flowlines
- Identify fractured production habits
- Identify operational constraints
- Uncover micro stoppages that impact utilization
- Identify production sapping trends
- Validate capacity requirements for capex justification
- Enjoy unrestricted shift creation
- Dynamic data exchange between MERLIN and other applications which support web sockets, APIs and JSON generation

## MERLIN

MERLIN is an IIoT Shop-Floor-To-Top-Floor communications platform that provides manufacturing analytics in Real-Time.
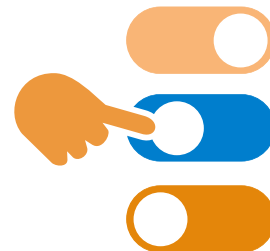
## FEATURES

- Customizable and open platform for Real-Time shop and plant floor monitoring
- Can operate independently of the corporate network
- Scalable, expandable, modular architecture for Enterprise deployment
- User configurable dashboard, built in .NET and HTML 5 technologies, equipped with a wide variety of screens and widgets
- Capability to incorporate user defined screens and widgets
- Supports MTConnect®, Fanuc Focas, Fanuc I/O link to MTConnect®, OPC and other software protocols
- Delivers green light metrics
- Monitors machine states automatically
- Provides Real-Time utilization of machines and operators
- Unlimited Machine state descriptions
- Unlimited Part reject descriptions
- Labor tracking against operations
- Powerful Shift Scheduler capable of unlimited shift configurations for machines and personnel
- Enable operators to classify machine down-time and part rejects using the optional MERLIN Operator Portal
- Multiple operator login against machines, cells, or workgroups
- Enables view of Real-Time machine, cell, workgroup and shop productivity information across enterprise through a web browser
- Communicates Real-Time user configured information on a web enabled computer, tablet or smartphone
- Email alerts for any desired machine event
- State-of-the-Art CEP engine for complex event processing

- Event viewer for detailed machine operational history
- Highly-scalable and highly-available multi-source data gateways for advanced signal processing of events
- Dynamic user customizable shop floor viewer
- User customizable Machine detail views
- Native display of available custom machine events such as overrides, program names, alarm descriptions
- Built in slide show to queue any number of web views within MERLIN Tempus
- Customizable machine attribute designer
- Ability to add custom grouping for machine assets
- Comprehensive history editor
- Dynamic "Metrics Widgets" for Real-Time visualizations
- Open APIs for third party data exchange
- Flexible and powerful adhoc reporting engine with virtually unlimited reporting capabilities
- Seamless upgrade to MERLIN Tempus Enterprise Edition with full OEE and job scheduling
- Easy upgrade path from MERLIN



## Modular
Open platform with an expandable architecture for an enterprise-wide deployment



## Customizable
Dynamic easy to interact with dashboard and shop floor viewer
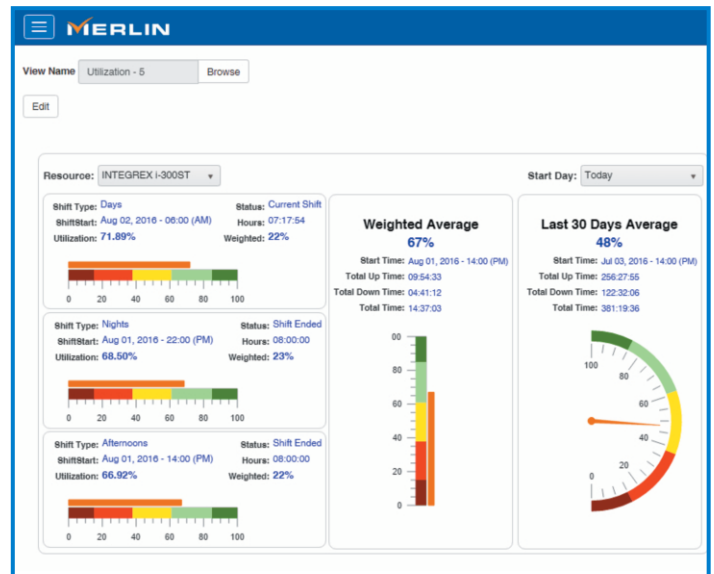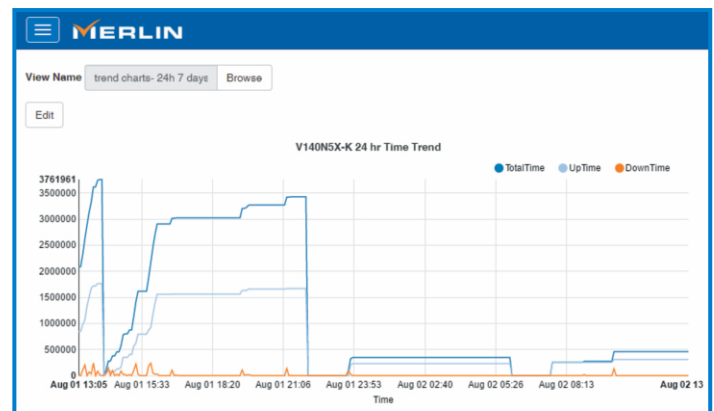
# REALIZING THE COMPLETE POWER OF OEE

Adding to the powerful tools offered by MERLIN Tempus, the Enterprise Edition brings to you the complete OEE metric along with a dynamic visual job scheduler capable of running jobs. With its modular architecture, MERLIN Tempus Enterprise Edition empowers you to seamlessly incorporate future Smart Manufacturing technologies into the platform.

## FEATURES ABOVE AND BEYOND THOSE OFFERED BY MERLIN TEMPUS

- Seamless upgrade from MERLIN Tempus
- Easy upgrade path from MERLIN
- Performance tracking of jobs against product standards
- Product and part definitions
- Priority and alternate machine routing
- Support for inventory lead times
- Support for setup and changeover times
- Dynamic visual job scheduling of operation steps
- Labor tracking against operations
- Multiple operator login against machines, cells, or workgroups
- Unlimited Machine state descriptions
- Unlimited Part reject descriptions against jobs
- Dynamic "Metrics Widgets" for real-time visualizations
- Dynamic data exchange between MERLIN and other applications which support web sockets, APIs and JSON generation



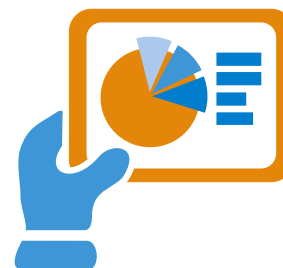Comprehensive Machine Utilization
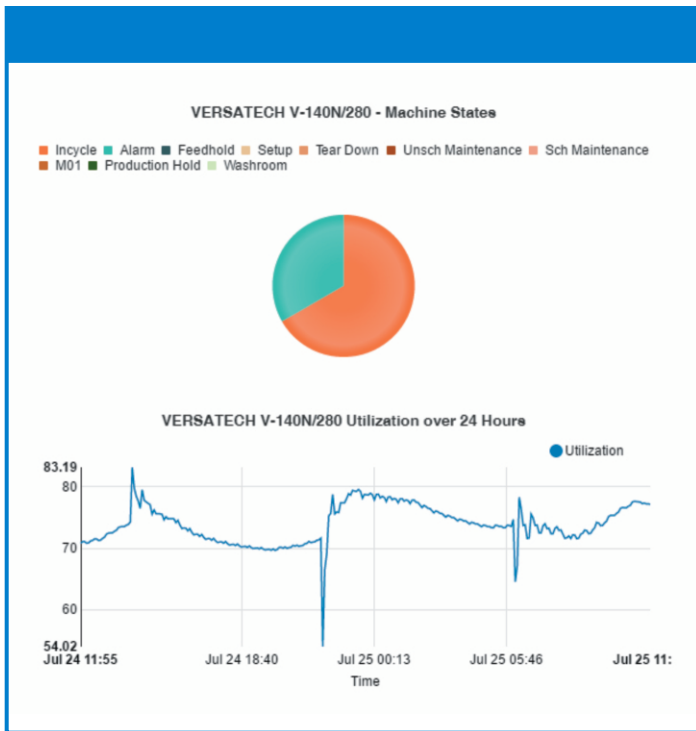


Historical and Real-Time Trending



## Real-Time

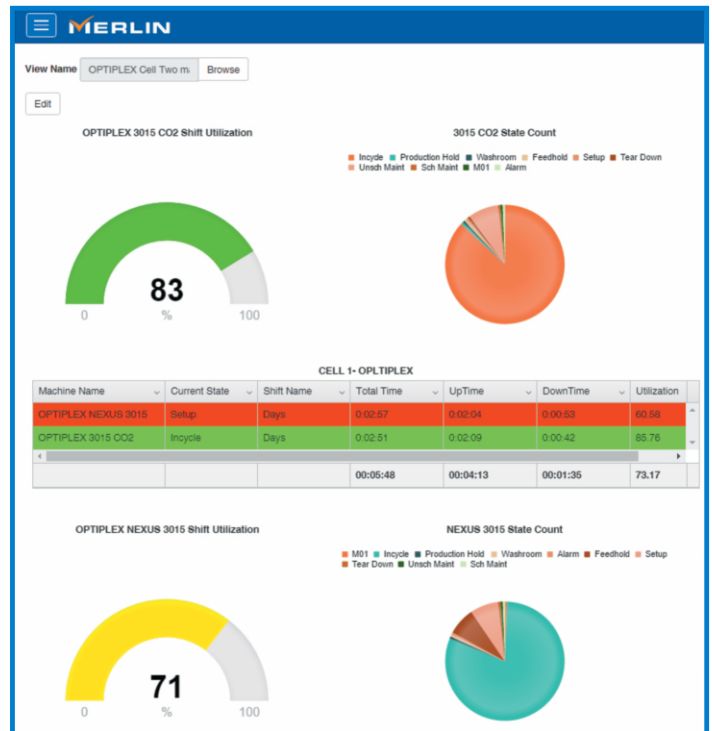Shop floor visibility for maximum OEE



## Advanced

Using the latest technologies to achieve positive tangible business outcomes

Constraint and Trend Charts


Flexible Real-Time Widgets

## ABOUT MEMEX™

The Industrial Internet of Things (IIoT) powered by machine to machine (M2M) connectivity coupled with software capable of collecting, analyzing, and intelligently presenting streams of manufacturing data represents no less than the next Industrial Revolution. MEMEX with its visionary attitude has been on the leading-edge of the convergence of the industry trends in Computing Power, Connectivity of Machines, Industry Standards, Advanced Software Technology, and Manufacturing Domain Expertise. Leading this transformation is MEMEX Inc., the developer of MERLIN, an award winning IIoT technology platform that delivers tangible increases in manufacturing productivity in Real-Time.

MEMEX, with its comprehensive understanding of the manufacturing industry, is the global leader in machine to machine connectivity solutions.

Committed to its mission of "Successfully transforming factories of today into factories of the future" and encouraged by the rapid adoption and success of MERLIN, MEMEX is relentlessly pursuing the development of increasingly innovative solutions suitable in the IIoT era. MEMEX envisions converting every machine into a node on the corporate network, thereby, creating visibility from shop-floor- to-top-floor.

MEMEX, with its deep commitment towards machine connectivity, offers solutions that are focused on finding hidden capacity by measuring and managing Real-Time data. This empowers MEMEX's customers to effectively quantify and manage OEE, reduce costs and incorporate strategies for continuous lean improvement.

**PRODUCTIVITY**
10%-50% average productivity increase

**PAYBACK**
payback in less than four months with an Internal Rate of Return (IRR) greater than 300%

**PROFITS**
20% + profit improvement based on just a 10% increase in OEE

**CONNECTIVITY**
connects to any machine, old or new

Contact MEMEX to implement IIoT data-driven manufacturing now.

**MERLIN**

**MEMEX**
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