



**The MES software solution
for continuous Productivity
Efficiency improvement**



INDUSTRIAL AUTOMATION SOFTWARE
progea

Pro.Lean[®]

The software solution for collecting and analyzing **production data** in real-time, to know and anticipate the production system's weak points and to act on **effective decision** making to **increase productivity and efficiency.**



MES software technology for open and flexible architectures

Progea offers Pro.Lean[®] as a MES software solution that interconnects plant floor levels with managerial levels to provide KPI and OEE data, calculate machine downtimes, track and schedule productions production.

Each modern company, in line with Industry 4.0, needs simple and efficient tools to ensure connectivity, data collection, aggregation and analysis, with minimum and rapid return of investment (ROI). The reality of productivity in today's increasingly competitive world, demands efficiency, quality and continuously improving processes according to the "Lean Manufacturing" philosophy and Industry 4.0 guidelines. Automation systems that manage manufacturing production can only be optimized by having the adequate real-time data. The Movicon.NEXT™ Pro.Lean[®] module offers maximum efficiency and uses Progea's vast experience in the industrial automation software sector. Production lines are normally subjected to events that determine the diminution of their performance efficiency in respect to its effective performance capacity: malfunctions, downtimes, waste and rejects all contribute to reducing productivity that often cause the company financial losses that may lead to worse consequences if the company is unable to intervene. The knowledge of the real-time performance indicators (KPI) permits you to establish the Overall Equipment Effectiveness (OEE) values to understand the effective

efficiency of your production plant. Knowing the data makes it easier to imagine how a more efficient production can mean a significant increase in business for any company by just investing little. Even a small increase in performances and loss reductions will earn the company big financial gains. In addition, data management and interconnections to managerial systems, within a Industry 4.0 framework, permit you to digitize production process, reduce errors and machine downtimes. Other functions such as production Traceability, Scheduling and Maintenance, make the Pro.Lean solution open and adaptable to any production system.



A simple and effective MES solution

Pro.Lean[®] makes your plants more efficient by using the key performance indicators to allow you to improve your production system's quality and efficiency.

The KPI indexes, OEE value and downtime production analysis calculated by pro.Lean[®] w, will enable your company to maximize production by increasing productivity in the three main parameters: Availability, Performances and Quality.

Increase Efficiency

Improving local and global production efficiency will enable you to make better use of existing productivity machines and reduce rejects and downtimes. As a consequence this will reduce plant running costs to satisfy your production plans without needing to rely on overtime work and the threat of delayed delivery deadlines.

Reduce Machine Downtimes

The downtime analysis will enable you to eliminate anticipated and repetitive problems relating to production. This will enable a reduction in plant downtime events and a significant reduction in costs and a better way of reallocating human resources productively.

Increase Production

By increasing efficiency and decreasing downtime events caused by production inactivity or malfunctioning will enable you to increase the effective production rate of the plant capacity value.

Quality Improvement

By analysing data for defective productivity will enable you to detect the causes and eliminate them. This will enable you to reduce production waste and rejects and thus increase product quality and hence client satisfaction.

Production Traceability

Since production processes have digitized, it is now possible to record and trace the use of raw materials and semi-finished products throughout the entire production chain. This allows you to manage the components of production batches, the quantities needed to meet orders, component codes and archive recorded data in order to track every part of the production batches' path throughout the process, from raw material to logistics and warehouse.

Production Scheduling

The interconnection between ERP managerial systems and manufacturing machines allows you to keep machine availability under constant control and directly set the machines' production management as well as handle priorities and field system availability.

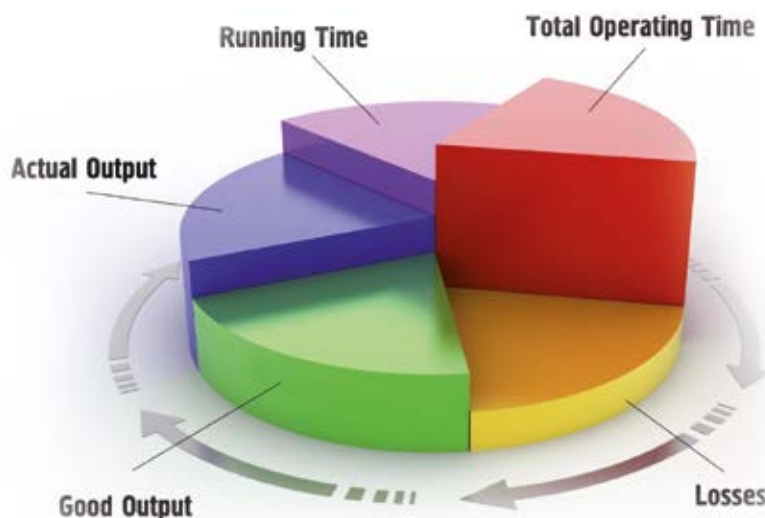


Increase productivity with KPI and OEE

Connectivity and data analysis to measure plant productivity according to the Industry 4.0 directives

The OEE is an essential parameter as a reference indicator for analysing production processes by calculating the overall performance of the production plant and classifying the different production losses according to the three following factors: Availability, Efficiency, Quality. The accuracy of the OEE values depends on consistent production data collected automatically in real time mode. Without accurate measurements and access to punctual extraction of production data it would be impossible to ascertain the right interventions needed for improving and rendering the production process more efficient. This is why Progea has designed Pro.Lean® and is the most simple and cost effective solution to use. Production line information flows can be managed by being aggregated and placed at the disposal of company managers with great clarity and

simplicity. This tool is essential for closing the gap that is often created between the field production processes, company management and planning. The Pro.Lean® module provides automatic and intuitive management of the “Historian” component for collecting and recording data, the “Dashboard” component for displaying the key indicators KPI, OEE) in real time and Reports for analyzing data collected and archived by date, shift, operator, machine, product and batch. Pro.Lean® offers cost contained tools for collecting real time information from production flows and analyzing the coefficients of efficiency using tables and graphs in an open and integrated web-enabled architecture that also enables direct connection to the company IT tools (ERP, SAP).

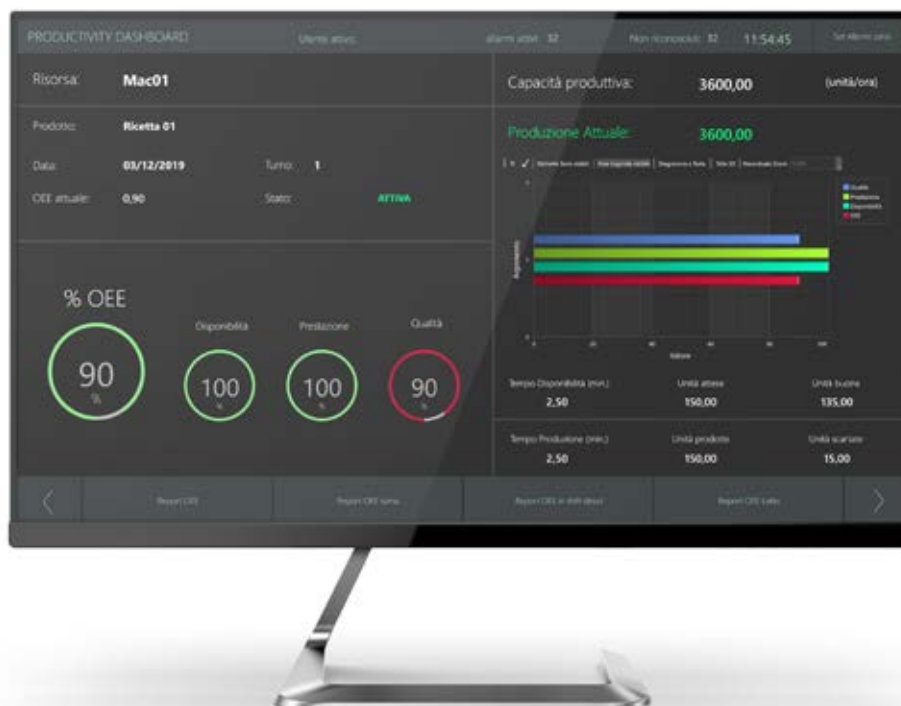


Dashboards

Efficient, complete, fast and transparent downtime and performance value visualization.

Pro.Lean® has been designed to guarantee perfect visualization of all the performance parameters and indicators collected by the production system using the real-time data dashboard displays and analytical reports. These tools offer transparent and accurate data containing all the information needed to achieve reduced production loss and increased business activity. By using the Movicon.NExT™ technology combined with the Pro.Lean® module, you will be able to view your company's performance indicators on local video screen monitors with dashboard displays as well as over the internet by using any HTML5 web browser.

This will drastically cut management, maintenance and licensing costs more than any other OEE system on the market thus allowing you to minimize company investments. The dashboard interface has been designed with the most modern ergonomics requirements in mind and is completely customizable. Its open technology allows you to easily integrate additional plant visualization or display screens and any other desired data visualization.





Plant Downtime and Maintenance

Downtime Analysis and Maintenance Planning to reduce plant downtimes and improve efficiency.

The information managed by Pro.Lean® is essential to allow production managers to improve production assets and machinery efficiency, optimize time and reduce waste.

Downtime Analysis

Pro.Lean® includes analysis modules that generate statistical analysis of downtime causes based on various configurable reasons. Production managers can refer to this analysis to obtain the vital information they need to recover efficiency with targeted action plans.

The Statistical Analysis

The Downtime Analysis Module is used to display statistical data relating to production downtimes. Data is graphically represented in classifications of date order, total duration or event frequency. The values are extracted from the historical archives and represented in charts that come with a selection of filters, such as by time range, batch, shift or operator. The charts can be displayed and printed to show statistical as histograms or with overlapping curves.

Maintenance Planning

Planned Maintenance management is easy to create using the statistical information, which is automatically available in the collected variables, to schedule set points on each user's total activity time or calendar. Maintenance staff are kept informed on the maintenance states and maintenance work is recorded in Audit archiving system.

Requested maintenance alarms, or any other event type, can also be notified directly to staff by using the optional Alarm Dispatcher function that sends notifications by email, voice, or push notifications to on-call duty staff.



Standard Technology that is reliable, scalable and modular

Pro.Lean® is based on standard technology that is reliable, scalable and modular for open solutions that integrate with any architecture.

Pro.Lean® is based on open architecture consenting integration with any control device and production line and machine management. An integrated system must be capable of collecting any field value coming from any PLC, CNC, PAC, Inverters, fieldbus or I/O instrumentation.

I/O Drivers

The I/O Driver library contains a vast selection of native and integrated I/O Drivers to communicate with control systems (e.g. Modbus, Siemens, Schneider, Rockwell, Omron, Saia, Mitsubishi, Profibus, Profinet, EtherCAT and others).

OPC UA

The OPC UA standard technology (IEC62541) is supported and native as the platform's information Model. It is supported as both Client and Server for the maximum data integration and openness.

Networking and data sharing

Vast network connectivity for distributed architectures, or SQL database table sharing with distributed workstations for connecting to any managerial system (ERP) or SAP business system.

IIoT Gateway

Communication Drivers for integrating IIoT systems, for example reading tools on public networks. PubNub, OPC UA Azure, MQTT and other Protocols.

Microsoft SQL Server-based

All process data collected by Pro.Lean® are recorded and archived for subsequent analysis using Data Logger objects that are automatically created by the Wizard. The modul functions without a Microsoft SQL Server™ license in simple architectures.

Data collection openness

The collection of measurements, operating states and alarms, if not already available as digital information from the PLC, require HMI interface on the local production monitor. The Pro.Lean® architecture is ideal for connecting man-machine interface displays (local HMI, in networks or over the HTML Web). In this way, any necessity for collection points or distributed visualization will be managed by the integrated features, safeguarding investments and reducing costs without any invasive interventions.

Data Redundancy

Pro.Lean® offers the possibility to manage the Data Redundancy function, by automatically synchronizing historical data on PC systems with redundant hardware and communications permitting its application in "Mission Critical" data collection systems.





Fast and safe return of investment

Pro.Lean® can be applied anywhere, in any production context and existing automation infrastructures, with minimum investment and minimum level of invasiveness.

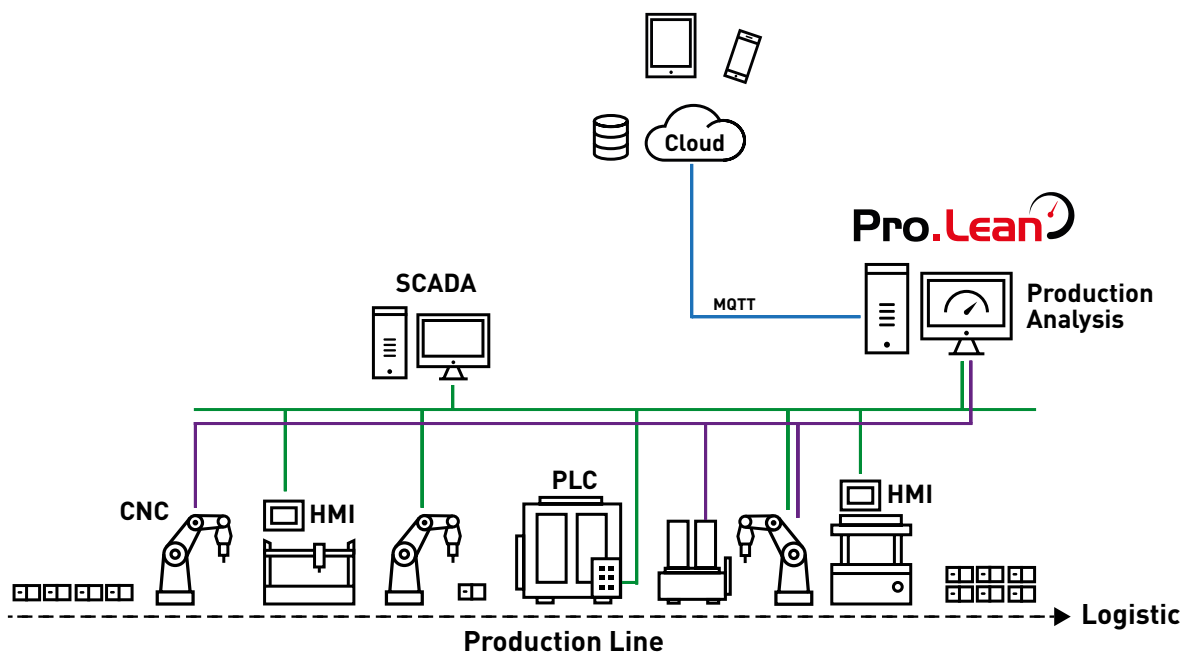
Pro.Lean® is a “standard” solution that can be used in all production data and analysis applications. It can be applied as an onboard machine module or as a production line supervisory module combined with the Movicon Scada/HMI supervisory projects, or in independent or stand-alone architectures applied in existing systems.

Pro.Lean® can connect to existing PLCs or already available SCADA/HMI by collecting production information in its own databases.

The solution offered by Pro.Lean® also allow those without a main Supervisor to integrate other screens

and manage all the production line information.

This has all been designed to reduce your investment to a minimum, without making changes to the existing situation unless absolutely required, and it is the best technology available for collecting, managing and analyzing production data.





Key Features

Openness

Pro.Lean® is a Movicon functional model and inherits the platform's .NET, XAML, SQL Server™ and HTML5 technology.

Simplicity Wizard

By using a wizard, Pro.Lean® makes it easy for users to select field variables and create data collection databases automatically. With just a few steps, real-time dashboards, calculation databases and analysis reports can all be created automatically.

Standard

Pro.Lean® is based completely on the most modern standard technology to safeguard your investment.

Performance

Pro.Lean® guarantees real-time data management and offers a structured data analysis management on databases for big data as well.

Powerful Historian

Collected data are recording using Historian objects that record on SQL Server archive tables with automatic data recycling management.

Connectivity

Pro.Lean® integrates a library containing a vast selection of communication drivers for connecting to all types of automation devices (Modbus, Siemens, Schneider, Rockwell, Omron, Saia, Mitsubishi, Profibus, Profinet, Ethernet/IP and many others). The drivers include functions for automatically importing tags, remote connectivity with telemetry systems or IIoT. In addition, it offers full connectivity with OPC UA both as Client and Server.

Report ready-to-use and Customizable

Pro.Lean® offers integrated and ready-to-use Analysis Reports of historical data which are both local and web-based. Data on the Server can be access by using internet browsers. The performance and security of the HTML5 standard contribute to cost and maintenance reductions.

HTML5 Web Architecture

Pro.Lean® offers dashboards and with local and web-based realtime and Report measurements, and allows access to data on the server via internet browsers. The performance and security of the HTML5 standard guarantee cost reduction and maintenance.

Integrated Connectivity with Movicon™

In addition to interfacing with any supervisory system, Pro.Lean® also offers the great advantage of integration and connectivity with the Movicon.NExT SCADA/HMI systems.



Service and Consulting

The service, an added value

The Total Cost of Ownership (TCO) of a software platform is also strongly influenced by the quality of related services. Important parameters such as learning times, response times, quality of service and consultancy are generally considered to be the true added value of a software product. Progea services have the quality that only the manufacturing company can guarantee. Training, Assistance and Consultancy guarantee the user in coping with any application or unexpected need, helping to reduce internal implementation and development costs.

Progea is directly present with its offices in Italy, Switzerland, Germany and the United States. Furthermore, an international distribution network guarantees the presence of the Progea™ brand all over the world.

A solid partnership

Progea software technologies are widely used and used in automation by leading companies in every industrial sector, with over 150,000 licenses installed worldwide. As a demonstration of the quality and reliability of its software products, Progea is proud to have been selected by the major players in the industrial automation sector.

Progea technology is used and distributed, even with product customizations with the customer's brand, by the world leaders in automation.

Do not hesitate to contact us, we will be happy to analyze your needs and offer you the ideal solution, also through the international network of System Integrators who are experts in Progea technologies.

Progea is available for any analysis and consultancy needs, and to support you in all your Industry 4.0 projects. Contact us for a demo and for any further information:

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