

TRICORN:NMS

Shopfloor Management Suite

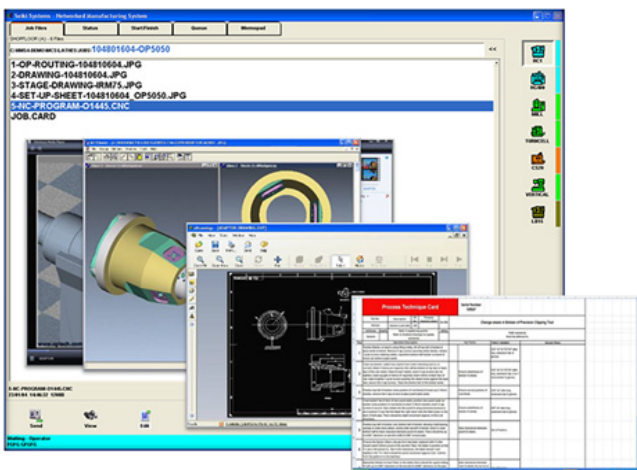
The TRICORN:NMS Suite is an integrated solution developed jointly by Tricorn Systems and Seiki Systems of Brighton. Using the TRICORN:Production ERP system linked to Seiki's shopfloor management tools provides a powerful solution covering both administrative and factory floor requirements.

At the shop floor level this includes the display of work queues and job data collection, machine monitoring, technical data distribution, DNC and probe data collection. The back office analytical suite offers a remote display of machine status, machine performance analysis, individual job reports and OEE. Key business tools that are necessary for effective work management and to achieve maximum utilisation of critical production resources.

DYNAMIC WORK QUEUES & JOB PACKS

Taking a lean approach to manufacturing means eliminating waste and reducing non-value adding activities for which fast, effective and simple shop floor communications are key. An integral component of Tricorn NMS is our easily maintained shop floor communications and data management control system. NC programs can be filed on either the host PC or company server if networked, thus providing a more efficient method of working using fast and reliable file management that will ultimately help reduce errors. Manufacturing data is delivered directly to the shop floor where machine operators have access to the files stored on a remote server.

Complete job information packs containing all the manufacturing data pertaining to an operation or component are available, with the additional flexibility of viewing, editing and manipulation of file types, based on user access privileges. A graphical file status indicator provides confidence that all file transfers are controlled and the system is able to automatically restrict access to NC programs according to their status. This type of systematic control of manufacturing data can underpin your internal quality control procedures.



The manufacturing data required for each CNC operation

Key Features

- ✓ Dynamic Work Queues
- ✓ Data acquisition via barcode scanner or touch screen.
- ✓ Online job packs.
- ✓ DNC management.
- ✓ NC program editor.
- ✓ Remote CNC monitoring
- ✓ Overall Equipment Efficiency (OEE) analysis.
- ✓ Factory machine status visibility.
- ✓ "Paperless Manufacturing".
- ✓ WIP Tracking
- ✓ Fully integrated with real-time scheduler
- ✓ Machine utilisation analysis
- ✓ Smart-phone app for remote viewing
- ✓ 24/7 Alerting via SMS

can be combined into a single job information pack. The data can include: NC programs, routing data, tool lists, set up sheets, photographs, NC simulation videos, etc. in any of the recognised formats.

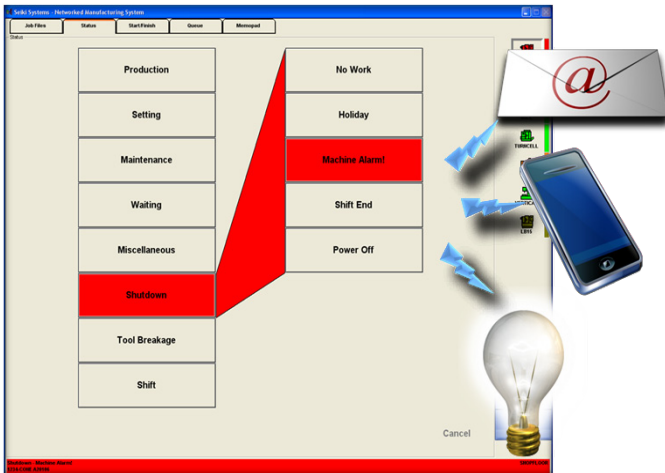
The filing structure is categorised to suit and can be either per machine based or component based with sub operations. The job information packs can be filed as folders in Explorer, in Excel spreadsheets or with an SQL database structure, with all the files being viewable on the shop floor, either individually or all simultaneously within the advanced viewer.

CNC MACHINE MONITORING & ALERTING

Automatic and manual collection of productive and non-productive events occurring on CNC and manual machine tools can be both captured and selected from 64 user definable activities. Each operating condition and status change can be derived automatically (e.g. cycle start or alarm condition) via signals received from the machine or manually entered (e.g. waiting parts) by selecting the defined activity on the local PC screen. All data collected is date and time stamped, including the duration of each event, and can be viewed as an event list or be exported and stored for evaluation purposes using spreadsheets or Machine Utilisation Analysis and OEE Reports.

The Factory Status module can be configured to provide a dynamic real time view of the shop environment showing current machine status and current job information. Multiple licences of the Factory Status module can extend this real time information availability to management or super-

visory personnel anywhere in your organisation.



In the event of machine alarms and stoppages it is possible, via the Tricorn Machine Monitoring solution, to generate automatic status conditions represented as colour coded icons. The system can be configured to utilise these conditions to automatically generate emails and SMS to supportive personnel, e.g. maintenance staff.

MACHINE PERFORMANCE ANALYSIS

The Machine Utilisation Analysis and Job Report modules can be used to generate performance reports that act upon the NMS central data repository which hosts the data collected from the Machine Monitoring and SFDC modules.

These reports can be presented as simple log files chronologically listing all events by date and time and viewed as pie charts showing machine utilisation and lost productivity with trend analysis and individual job reports detailing the time taken on the various job activities together with a comparison of planned versus actual. The collected log files are also available for export to other external packages.

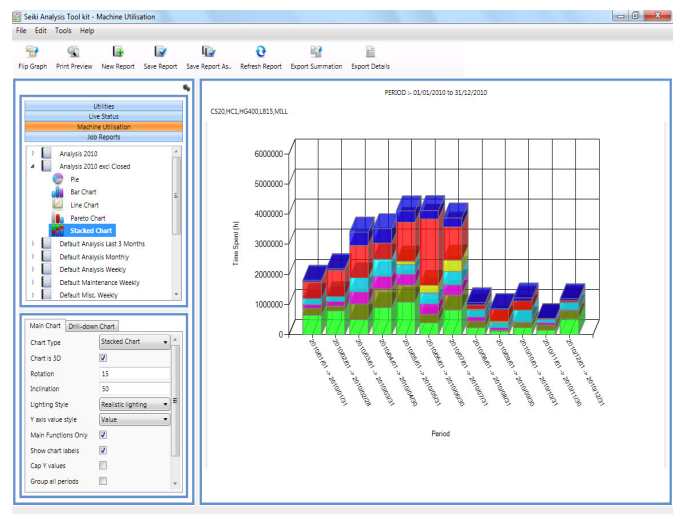
OEE data provides a valuable indication of actual resource, groups of resources or site efficiency. This data shows information that can be used to evaluate if processes are correct, highlight resources that are under utilised or identify resources that are suffering reliability problems. It provides the basis on which improvement strategies can be implemented.

The OEE Analysis software combines the measurements of machine availability, productivity and the quality of parts produced to give a simple measure of how well a machine is being used. The OEE software displays the machine

performance results for individual jobs with the additional benefit of providing accumulative results for multiple jobs over a selectable period of time.

The real-time probe data collection module automatically collects in-cycle probing results in real-time from CNC machines equipped with precision probes and a suitable data output facility. The collected data can be routed via Tricorn's NMS internal configuration facility (SBS) to create records or feed SPC systems. In turn these external packages can be used to generate records, trigger alarms/alerts and generate SMS or emails. A unique facility is incorporated whereby the software is able to support both DNC and data collection for CNC machines equipped with a single RS232 port.

Probe data collection provides information to support management reporting and can be used to generate valuable warnings of potential problems that may impact production, thus extending a level of confidence in the manufacturing support environment that a process is stable and under control.



Tricorn NMS comprises both manufacturing and business intelligence software, which at the shop floor level includes the display of work queues and job data collection, machine monitoring, technical data distribution, DNC and probe data collection. The top office analytical suite offers a remote display of machine status, machine performance analysis and individual job reports, key business tools that are necessary for effective work management and to achieve maximum utilisation of critical production resources.

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