



THE MES SOLUTION FROM THE AUTOMATION PRO – TAILORED AND FUTURE-PROOF



fe.screen-mes® – a product of the F.EE company group

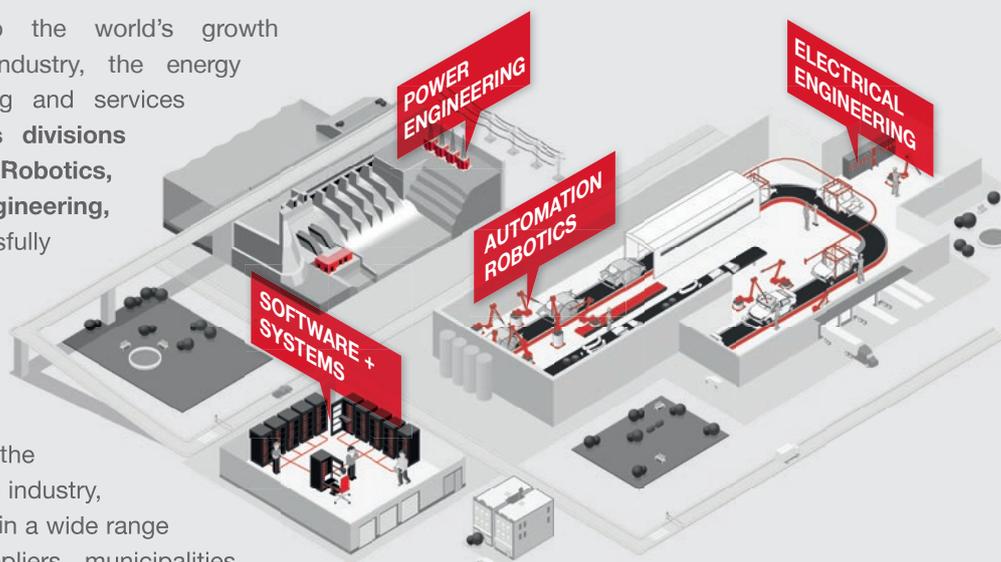


OUR EXPERIENCE IS YOUR ADVANTAGE

fe.screen-mes is a quality product of the **F.EE company group**. With currently around 1,000 employees, the company group is one of the German market leaders in production and automation technology.

The company is committed to the world's growth markets of the capital goods industry, the energy sector as well as the engineering and services segments. With its four **business divisions** **Electrical Engineering, Automation Robotics, Software+Systems** and **Power Engineering**, the company offers very successfully customised solutions in addition to products and services individually adapted to customer requirements. As a rule, the business divisions operate independently of one another in the market. In addition to the worldwide automobile and supplying industry, small and medium-sized businesses in a wide range of sectors as well as energy suppliers, municipalities

and power plant operators also belong to the F.EE customer base. **State-of-the-art technical equipment, expertise, flexibility** and **many years of know-how** are among the strengths of the F.EE company group.



BENEFIT FROM **OVER 30 YEARS OF EXPERIENCE** IN **AUTOMATION TECHNOLOGY** AND THE **REALISATION OF WORLDWIDE PROJECTS** IN A WIDE RANGE OF INDUSTRIES!

READY FOR DIGITALISATION? fe.screen-mes WILL SUPPORT YOU WITH THIS!

A **Manufacturing Execution System (MES)** is a process-oriented operating **production management system** that facilitates the **planning, control and monitoring of production in real time**. The MES is connected directly to the machine level, processes planning data from the ERP system and delivers production-relevant data and key figures. As such, it functions as a link between the shop floor and management levels.

The go-ahead for fe.screen-mes came back in the year 2004, within the framework of an F.EE project for a leading manufacturer within the automotive sector. Since then, fe.screen-mes has been continuously updated in line with the latest requirements and has proven itself in numerous industries as a **modular, high-performance MES solution**.

By cross-linking your machines and systems with fe.screen-mes, you obtain all **relevant information** – automatically and free of errors – **in real time**, regardless of the age of your machine outfit.

On request, the information logged with fe.screen-mes can be saved to a cloud – e.g. Microsoft Azure, AWS or a private cloud – so that **secure, worldwide access is possible at any time without restriction**. With fe.screen-mes you have discovered the ideal pathfinder with which to **introduce digitalisation** to your company!

fe.screen-mes – THE **ADVANTAGES** AT A GLANCE:

1 **Holistic value added chain** within the company and **transparent production processes**.



2 **Enhanced planning reliability** and the associated **compliance with delivery schedules**.



3 **Reduction in production losses and throughput times** and **increased productivity**.



4 **Avoiding defects in the production process** and **improvement in product quality**.



5 **Solution individually tailored to customer needs** – also in terms of IT systems, clouds, IoT.



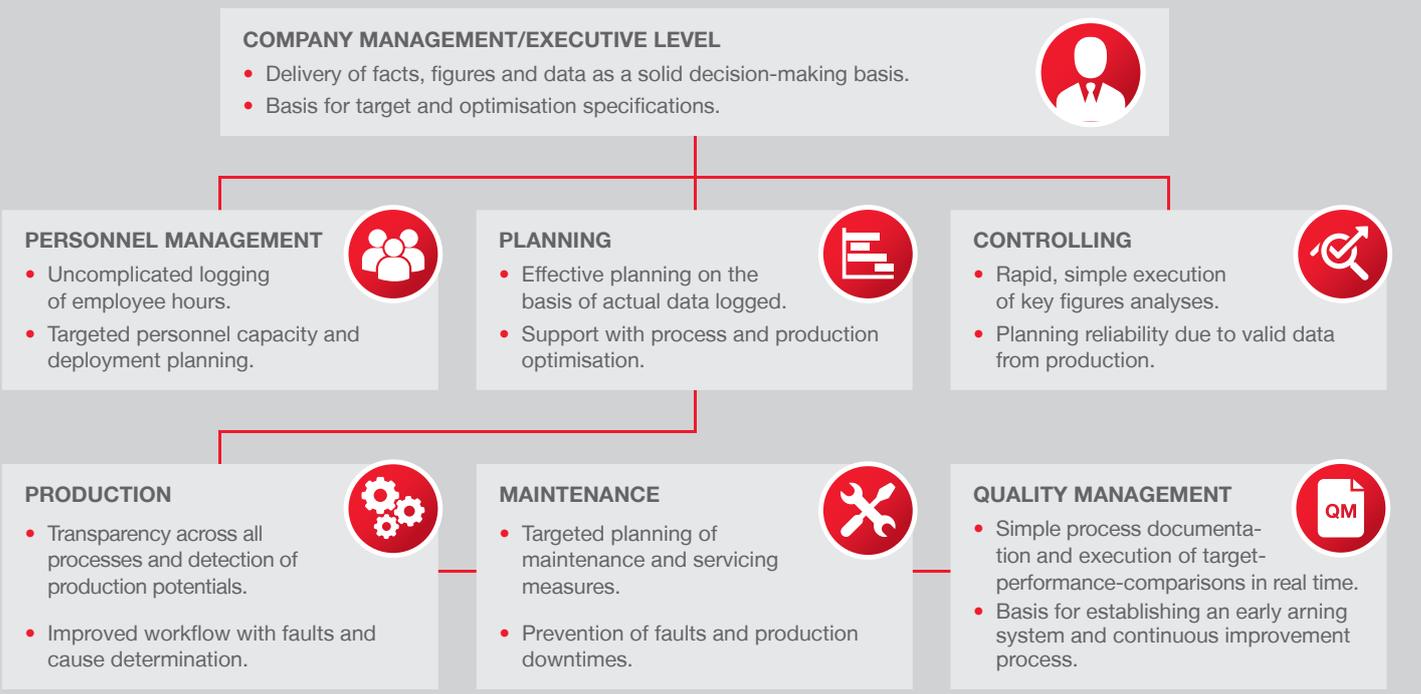


fe.screen-mes – THE SCOPE OF APPLICATION: PROFITABLE AND PROVEN IN PRACTICE IN NUMEROUS INDUSTRIES AND COMPANIES

Each sector has its own specific requirements for the perfect MES solution. Our long-term experience in the field of automation technology aids us in the **recognition of your needs**, in the **development of optimum solution proposals** – tailored to the respective sector – as well as the **efficient cross-linking** of the machines and systems involved.

Successful implementation of fe.screen-mes: In the **automobile** and **supplying industry**, in **plant and machinery construction**, the **plastics** and **food sectors**, in the **printing industry** and in **contract production**.

fe.screen-mes – SCOPE OF APPLICATION AND BENEFITS WITHIN THE COMPANY:

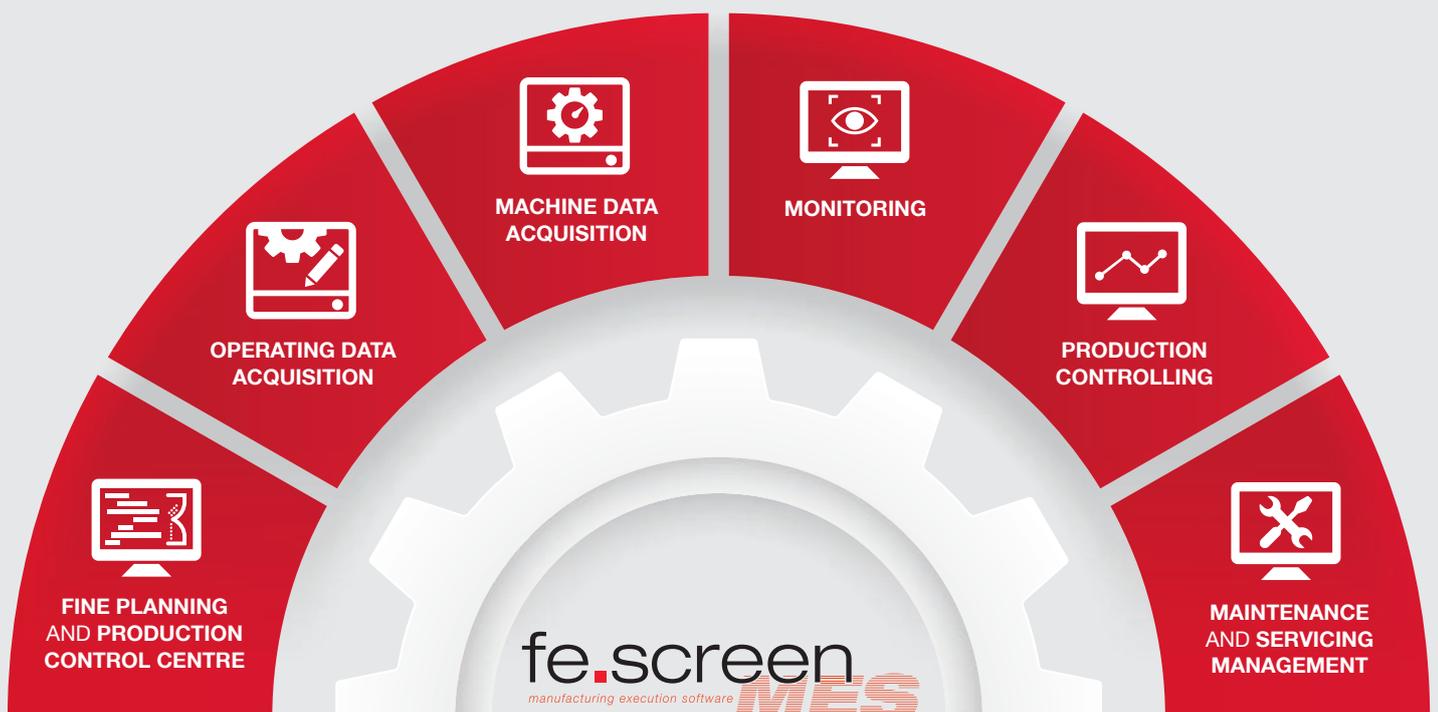




fe.screen-mes – THE MAIN MODULES AT A GLANCE: BUILD YOUR TAILORED MES SOLUTION!

The **modular design** of fe.screen-mes guarantees **huge flexibility** in terms of functions and costs. All modules can be **arbitrarily combined** and **individually enlarged** on request. And when it comes to services, we offer a complete package from consultancy to support, and – if necessary – we also supply the appropriate hardware.

EVERYTHING FROM A SINGLE SOURCE: ADVICE, CONCEPT DESIGN, IMPLEMENTATION, SUPPORT & HARDWARE.



fe.screen-mes covers all areas of the operational production process and keeps you reliably informed of the current production status. You can find out more about the main modules listed above and possible additional functions on the following pages.



FINE PLANNING AND PRODUCTION CONTROL CENTRE

This module performs **order fine scheduling with consideration to the available resources** and **visualisation of the results** in a graphic control centre.

Two versions are available here with different expansion stages – a “Smart” edition and an “Optimization” edition.

The “fine planning” module can also be used independently of fe.screen-mes, and is available on the cloud if desired. Different interfaces already exist to various ERP systems, for example the F.EE company software “FactWork”.

The functions and advantages at a glance:

- Direct import of planning scenarios and unplanned orders from the ERP system.
- Rapid calculation of optimum production plans.
- Definition and weighting of different optimisation targets (deadlines, costs, etc.).
- Multi-resource and material requirement planning.
- Visualisation of the planning results in the control centre.
- Drag-and-drop scheduling of the orders.



OPERATING DATA ACQUISITION

With this module you are always ‘up-to-date’ when it comes to production progress. **Order information** is captured and displayed **in real time**, and can also be entered manually in the terminal.

The functions and advantages at a glance:

- Provision of real time information on the order progress, duration, quantities, as well as acquisition and categorisation of production losses.
- Automatic remote indication and feedback of the data to the ERP system.
- On request, realisation of an interface with your CAQ system.



MACHINE DATA ACQUISITION

Regardless of whether its an injection moulding, CNC or filling machine – we acquire the requisite data from your machine outfit and you are **constantly informed of the status of your machines**.

The functions and advantages at a glance:

- Automatic acquisition of production-relevant data and statuses (e.g. machine output, production speed, faults).
- Direct machine connection with native driver or OPC, OPC-UA and data acquisition on older machines with IoT-Gateway.
- Data storage on the cloud possible.



MONITORING

The monitoring module is your window to production – and in real time! All pertinent data – such as production output and quantity, machines states and key figures – can be viewed directly at the work place or with mobile end devices. So that you are guaranteed to maintain an **overview of the current production status, any time and any place**. The current machine status can also be displayed in a hall overview with traffic light system. A further plus: On request, visualisation of the data is possible via the digital information system “F.EE Infoboard”!

The functions and advantages at a glance:

- Rapid overview of the complete status of your production and all orders to be processed on a machine at any arbitrary time point.
- Visualisation of errors, maintenance and production times with a monitor timeline.
- Optical marking of downtimes for rapid identification.
- Possibility of connection to the “F.EE Infoboard” and use with mobile end devices.



MAINTENANCE

Service and maintenance are important measures for the realisation of efficient production. Therefore, **plan your servicing activities** with the maintenance module **before production downtimes and faults arise!**

The functions and advantages at a glance:

- Planning, execution, monitoring and documentation of maintenance procedures.
- Simple creation and clear presentation of maintenance schedules.
- Automatic notification of pending maintenance work by email or SMS.



PRODUCTION CONTROLLING

With fe.screen-mes, controlling is child’s play. **All common key figures** – e.g. OEE (Overall Equipment Effectiveness) – can be calculated with the controlling module for freely definable evaluation time frames.

The functions and advantages at a glance:

- Individual key figure calculation on the basis of available actual data.
- Article or order-related analysis with representation of the mean values according to preferences.
- Production of reports with KPI Reporting Editor.
- Optimum basis for the continuous improvement process.



ALARM & REPORTING

If desired, the “Alarm & Reporting” module reliably informs you of any **machine faults and downtimes**, as well as the reasons for these – and all this conveniently **by email, SMS, voice mail or messaging service**. Furthermore, fe.screen-mes also offers the option of monitoring the current production status and plant statuses by means of automatic notification. You are informed if something in your production is not correct – irrespective of time and place – so that you can react immediately. Therefore, now nothing stands in the way of automatic, unmanned production.

The functions and advantages at a glance:

- Automatic notification by voice mail, email, SMS, messaging service.
- Reliable information – promptly – about downtimes and faults including reasons.
- Monitoring the latest production and machine statuses irrespective of time and place.
- Automatic preparation of the logged data, as well as transmission in compressed form.
- Unmanned production possible.

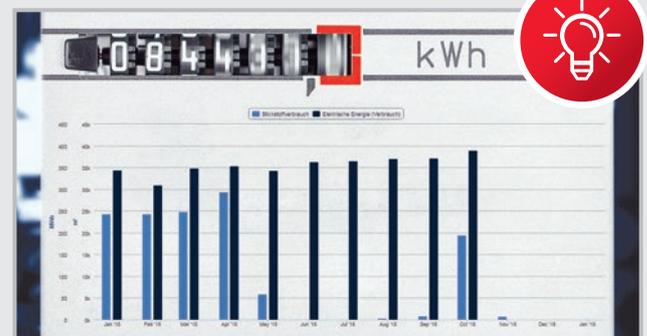


CONDITION MONITORING

This module constantly records **analogue measured values** – e.g. temperatures, pressures, currents – **during production**. With this, it is possible to detect gradual changes promptly and implement counteraction measures in advance.

The functions and advantages at a glance:

- Seamless acquisition of process parameters including recording trends.
- Direct display of minimum, maximum and average values.
- Simple data export for subsequent processing.



ENERGY MANAGEMENT

Reducing energy costs is becoming increasingly important for companies. Decisive here is not only the overall consumption, but also **product and order-related energy costs**. fe.screen-mes establishes the necessary transparency here.

The functions and advantages at a glance:

- Read out energy data directly from meters or via a software interface.
- Order and product-related assignment.
- Clear presentation and diverse evaluations possible.

... BECAUSE INDIVIDUALITY KNOWS NO BORDERS



CAQ MEASURED VALUES

With the CAQ module you capture **quality and measured data directly at the work place** in the familiar BDE acquisition screen of fe.screen-mes, and you produce reports, control charts and statistics without extensive effort and time expenses.

The functions and advantages at a glance:

- Acquisition, checking, documentation and archiving of all quality-relevant data.
- Quick and easy production of quality reports, control charts, statistics, etc.
- Connection to existing CAQ system.



TRACK & TRACING

You wish to guarantee the **seamless traceability** of your products, assemblies or batches **in real time**? The “track & tracing” module delivers transparency from material supply through to product delivery.

The functions and advantages at a glance:

- Seamless traceability of products, assemblies and batches.
- Acceptance of serial and batch numbers with scanners and machine controls.
- Individual search and evaluation functions.



INDIVIDUAL PROGRAMMING

You have special requirements that the previously listed modules of fe.screen-mes would not be able to fulfil? No problem! For our experienced software developers, **programming tailored modules and features precisely in accordance with customer**

requirements is the order of the day. Input screens can naturally also be aligned with your individual requirements. We shall also be happy to realise the right solution for you – no task is too complex for us. **Challenge us!**

ROUGHLY **50 F.EE SOFTWARE DEVELOPERS** WILL GIVE THEIR ALL FOR **YOUR TAILORED MES SOLUTION!**





fe.screen-mes – INTERFACES: INTEGRATION AT THE HIGHEST LEVEL

At F.EE, our own experience has shown us that the efficient implementation of a software solution is only possible if this can be integrated **in existing IT structures quickly and without complication**. This fact has naturally also been taken into consideration in the development of fe.screen-mes.

In order to achieve consistent and transparent software communication within the production sequences and processes, **interfaces with a wide range of software solutions** are available as standard – e.g. with existing ERP, CAQ, merchandise management, visualisation or energy management systems.

The **import and export of all conventional file formats** is naturally also possible and straightforward.

However, if necessary, our software developers are also happy to develop potential solutions and interfaces for the **connection of individual, customer-specific systems**.

This ensures that the existing process structures with their software interfaces are optimally mapped, and that **optimum integration of existing systems take places – from the ERP system right to the machine level**.

With the **F.EE product series “Software for Industry”**, on request you also have available to you a wide range of adaptable software products for the realisation of a **holistic company solution**. We **fully prepare your company for Industry 4.0!**

ERP/
MANA-
GEMENT
LEVEL

FactWork
unternehmens-software

fe.screen
manufacturing execution software **MES**

PRODUCTION
MANAGEMENT LEVEL

fe.screen
SCADA + visualization **VIEW**

PRODUCTION LEVEL / SHOP FLOOR



OUR PROMISE: WE MAKE CUSTOMERS HAPPY!

100 percent customer satisfaction – that is the aspiration that all F.EE employees pursue every day. As such, we focus not only on the perfect technical preconditions that fe.screen-mes offers, but also on **tailored support and guidance** throughout the entire implementation process and beyond. **An experienced F.EE project leader** works together with you to develop a **company-specific, practice-orientated concept**, supports you throughout **project implementation** and stands alongside you following completion, to provide advice and assistance – for example within the framework of **training sessions** – at any time.

The “fe.screen-mes” software is a structured, modular program that facilitates intuitive operation of the systems by the machine operators.

The program can be enlarged, expanded and adapted to special requirements. We have performed this successfully many times over.

Due to the autonomy of the program with data transfers to an interface, it is compatible with the production programs used in our company.

It impresses not least with reliability. We have experienced no system-related failures in recent years.”

*Bernd Wein –
Head of Operations at Paragon
Customer Communications Schwandorf GmbH*



“SATISFIED MES CUSTOMERS” INCLUDE:



