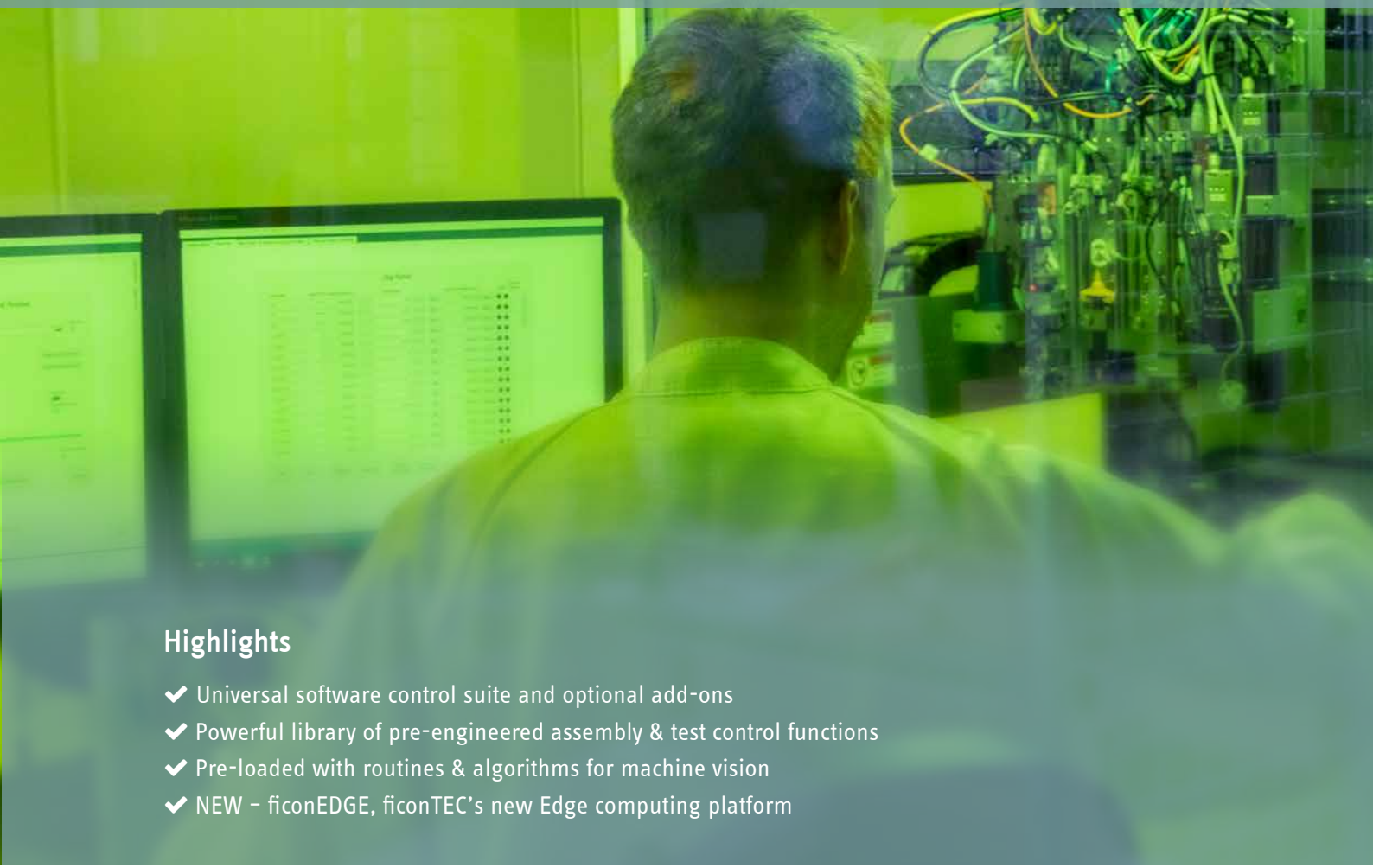
MANUFACTURING MADE LIGHT
Solutions for integrated photonics. Built to scale.

Process Control Master

Software Control Interface

ficonTEC's seamless and user-friendly process-oriented software control interface that ships with all stand-alone and in-line machine configurations, vaild for both Custom Systems and our Interconnect Essentials suite



Highlights

- ✔ Universal software control suite and optional add-ons
- ✔ Powerful library of pre-engineered assembly & test control functions
- ✔ Pre-loaded with routines & algorithms for machine vision
- ✔ NEW – ficonEDGE, ficonTEC's new Edge computing platform

PHOTONICS AUTOMATED ASSEMBLY AND TESTING
FROM LAB TO FAB

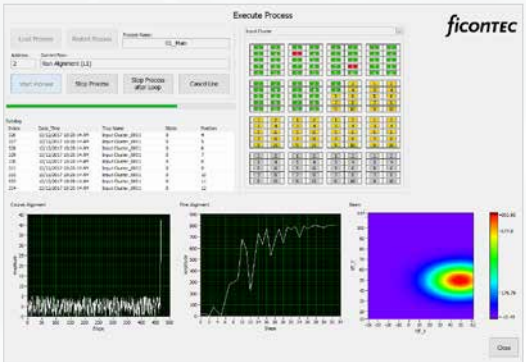
ficonTEC
photonics assembly & testing

Software Control, PCM

Almost our most important product feature, Process Control Master (PCM) is a user-friendly and process-oriented software control interface. Flexible process control and scalable options enable customized assembly & test solutions suitable for early device development, for new product introduction and for high-volume manufacturing.

PCM features an intuitive machine/process interface for all referencing, referencing, positioning, handling, control and machine vision routines required to reliably and repeatably drive all processes and hardware. It also comes already fully enabled for automated electro-optical test and characterization tasks. More complex modular instrumentation such as tunable laser sources, multi-channel power meters, optical switches, etc. are also included.

PCM drives not only single stand-alone systems but is also already tried-&-tested for multiple (in-line) machine installations.



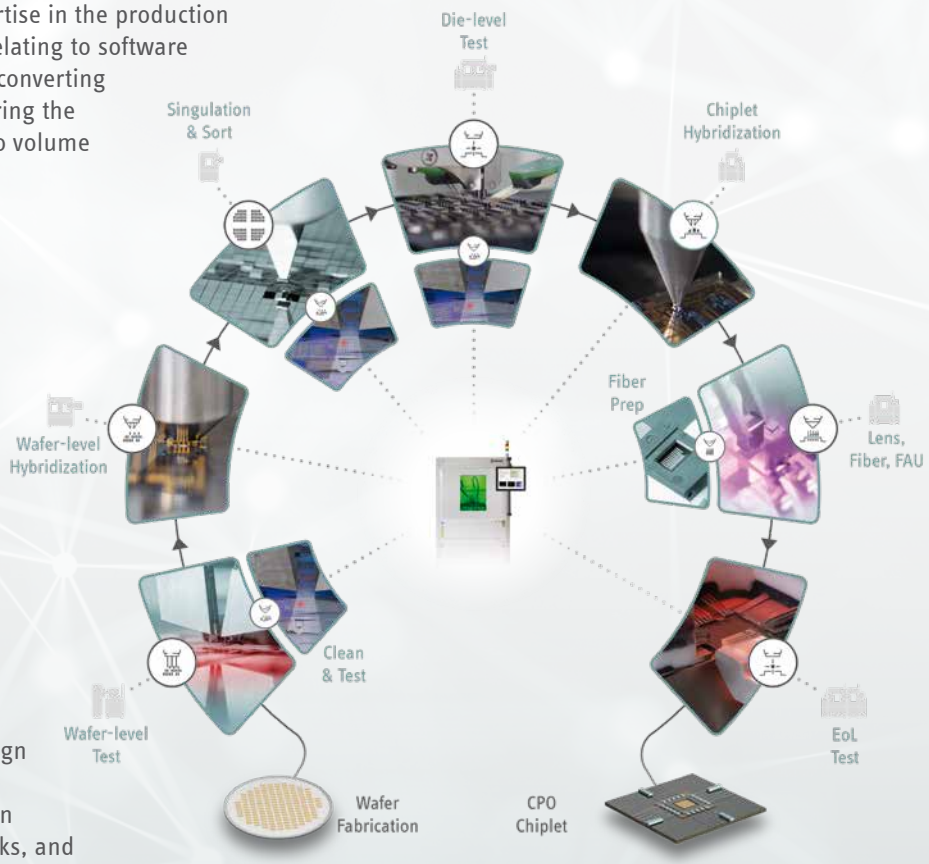
Process data on-screen

Process development & optimization

ficonTEC can help customers with their process optimization at all stages of development and realization. By working to understanding the customer needs, we can combine our technical expertise in the production process design – including those aspects relating to software control. This is of particular importance in converting manual assembly and testing protocols during the migration from prototyping/development to volume production.

PCM provides traceability, testing protocols and automated testing sequences via direct interfacing to an SQL database. Additionally, powerful and adaptable process tuning and sequencing that can be further optimized by leveraging the statistical data logged in the same database via the AI-driven tools provided by ficonEDGE. Yield, cycle time, uptime, device performance and cost per part can all be optimized within the available parameter space allowed by the production process – within a single cell machine or across multiple in-line machines.

By optimizing each step right from the design phase, introducing innovative processes, utilizing high levels of advanced automation for even the most demanding assembly tasks, and holding it all together with our tried-&-tested software control, ficonTEC provides a reliable route to high-volume manufacture.



Process Control Master
Software Control Interface

Key features

- System-wide implementation for consistent ‘look & feel’
- For stand-alone systems and multiple machine configurations
- Expansive, powerful library of assembly & test functions
- Process editor for fully configurable process sequencing
- Recipe-based management of process steps & parameters
- Pre-loaded with machine vision routines & instrumentation drivers
- Open access architecture for custom code & drivers
- Deep Learning tools for optical inspection
- Adaptable interface can show real-time operational data
- SQL database for process/component data and yield monitoring
- ficonEDGE – AI-driven Machine Learning for performance analytics

Compatibility

- System-wide implementation for consistent ‘look & feel’
- LabVIEW-based, SQL database, PXI-compatible
- Open interface for integration of customer software routines
- USB 2.x and higher, IEEE 1394 (FireWire), GigE, CameraLink
- Pre-loaded drivers for Agilent, DILAS, Keithley, Keyence, Lumentum, ThorLabs, Yokogawa and many more

NEW – ficonEDGE

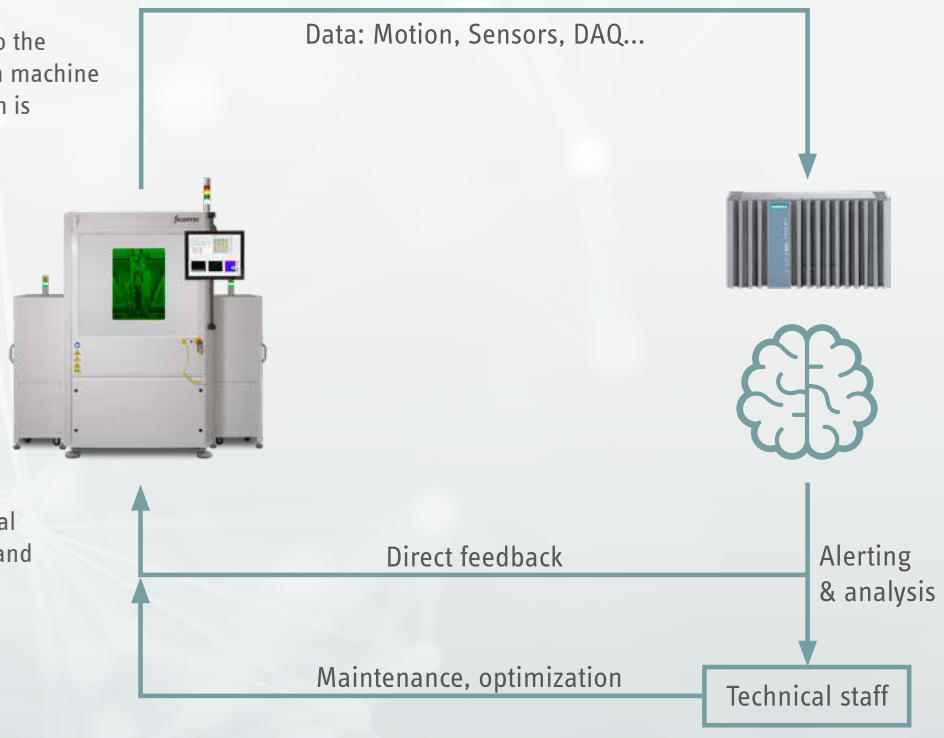
Machine Learning for process optimization

PCM already logs a wealth of real-time physical and optical production data of all process steps. ficonEDGE leverages this data to open the door to data-driven optimization of production KPIs using cutting-edge AI-driven machine learning. Use cases include:

Self-adaptive production
By integrating model outputs directly into the process, a closed loop is formed between machine and edge platform. No human interaction is required, therebysaving resources.

Yield & process control
Review and analyze data locally with a well documented dashboard solution. Alerts can be easily distributed via common messenger systems and even configured for direct interaction with the machine.

Predictive maintenance
Monitor the status of critical machine components in real time, identify potential hardware issues and efficiently manage and minimize any downtime.



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ficonTEC is the global market leader for automated assembly and test solutions for modern optoelectronics and integrated photonic devices. In serving development and manufacturing needs for telecom/datacom interconnects, sensors & lidar, camera modules, high-power diode lasers and many other integrated applications for over 20 years, ficonTEC's suite of process capabilities is unmatched.

Additionally, a unique and modular approach to production equipment design means that each solution is the automated and optimized embodiment of a customer-defined process.

Contact us

ficonTEC Service GmbH
Achim, Germany

T +49 4202 51160-0
info@ficontec.com

For ficonTEC subsidiaries in the US and Far East as well as for distributors around the globe:

www.ficontec.com/locations

Process Control Master v2.x

Primary features	• Powerful library of pre-engineered assembly & test control functions • Process editor for fully configurable process sequencing • Pre-loaded with routines & algorithms for machine vision • Recipe-based management of process steps & parameters
Motion system	Compatible with all available ficonTEC motion systems, including: 1. passive referencing via machine vision system using multiple cameras 2. high-precision 3 – 12 axis positioning system (more axes on request)
Machine vision	Standard/multiple positioning and observation camera options
Component handling	Pick-&-place, feed systems, single/dual conveyor
Component tracking	OCR-based component recognition, die sorting, wafer mapping, etc.
Wafer capable	Wafer handling and wafer-level processing in qualified machine systems
Expansion	Open interface for integration of customer software routines
User management	Admin/Service/User/Operator & customer defined
Remote operability	Remote monitor & sync via RCS / autonomous operation via Performance Services
Min. requirements	Windows 10 x64 OS (min.100 Mbit/s network connection required)
Connectivity	USB 2.x and higher, IEEE 1394 (FireWire), GigE, CameraLink, TCPIP

A Revision Control Server (RCS) can be implemented locally or remotely to monitor and synchronize process parameters across multiple lines, thus enabling maximum repeatability and consistency of performance and yield, even across global activities.

Vers. PC/2506-v1-en