

# kontron

The Power of IoT

Kontron AIS GmbH



Bildmontage © shutterstock.com/Mike\_shots, iStockphoto.com/Extreme Media



## ToolCommander®

### The Open Equipment Control Software Framework

The ToolCommander® is an open software framework for equipment control and visualization in the semiconductor and thin film industry, suitable for cluster, inline and batch systems. The modular design allows you to easily customize your systems to meet the individual needs of different industries. Its open design enables you to integrate own developments, protecting your process know-how and speeding time-to-market. For more than 30 years, our team has been realizing equipment control solutions for the semiconductor, thin film and photovoltaic industries.



## Your benefits

### Time-to-market

- › Efficient development with a modern C#/.NET framework and WPF visualization
- › Consistent openness for efficient programming with or without our support
- › Early and efficient tests thanks to full simulation capability

### Transparency

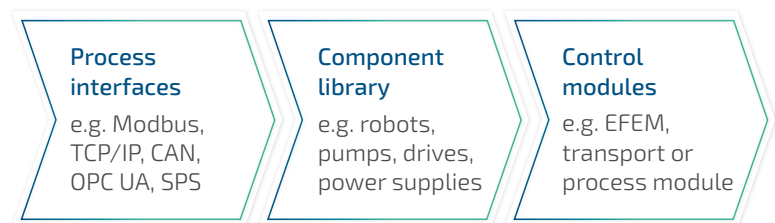
- › Intuitive operating concept with fully touch-optimized (SEMI E95) GUI for fast access
- › Powerful diagnostic tools, unique interlock handling, and comprehensive system diagnosis with live debugging
- › Trend module for process monitoring, quality assurance and predictive maintenance

### Protection and compliance

- › Know-how protection with in-house developments
- › SEMI standard compliance and prepared SECS/GEM integration
- › User management with configurable rights

## Easy adaption

The comprehensive component library enables the integration of pre-defined control modules using various interfaces. Furthermore ToolCommander® offers the possibility to develop and integrate your own software components and create additional modules.



## Standard compliance

The equipment control software ToolCommander® in combination with the equipment integration solution FabLink® supports the following SEMI standards:

### SECS/GEM (200 mm)

- › E5 – SECS-II
- › E30 – Generic Equipment Model (GEM)
- › E37 – HSMS (TCP/IP)

### GEM300 (300 mm)

- › E39 – Object Services
- › E40 – Process Job Management
- › E84 – Carrier Handoff
- › E87 – Carrier Management
- › E90 – Substrate Tracking
- › E94 – Control Job Management
- › E116 – Equipment Performance Tracking

### EDA (Interface A)

- › E120 – Common Equipment Model
- › E125 – Equipment Self-Description
- › E128 – XML Message Structures
- › E132 – Authentication and Authorization
- › E138 – SEMI Common Components
- › E145 – Measurement Unit Symbols in XML

# Modules

## Basic functionality

### User management

- › Integrated user management and configurable rights

### Alarm management

- › Archive for all alarms, warnings and notifications
- › Integration of alarm-related functions

### Trend

- › Configurable graph and tabular views on historic and live data
- › Data archive with export option and integrated data management

## Commissioning and service

### Simulation and test

- › Full simulation capability of the equipment
- › Manipulation of single parameters for test cases

### Manual operation

- › Control and parameterize individual components
- › Visualization of current actual and target values

## Visualization

### GUI via WPF

- › Consistent touch operation concept (SEMI E95)
- › Fast customization
- › Switching languages during equipment operation
- › Generic interlock visualization

## Control

### Scheduling

- › Task management
- › Integrated optimizing algorithms
- › Real-time adjustment based on live data

### Material management

- › Identification and tracking
- › Assignment of jobs to materials

### Job management

- › Management of control and process jobs (GEM300)

### Recipe management

- › Create and manage recipes
- › Recipe status definition (development/production/archive)
- › Control of process and flow recipes

## Diagnosis and troubleshooting

### I/O-Diagnose

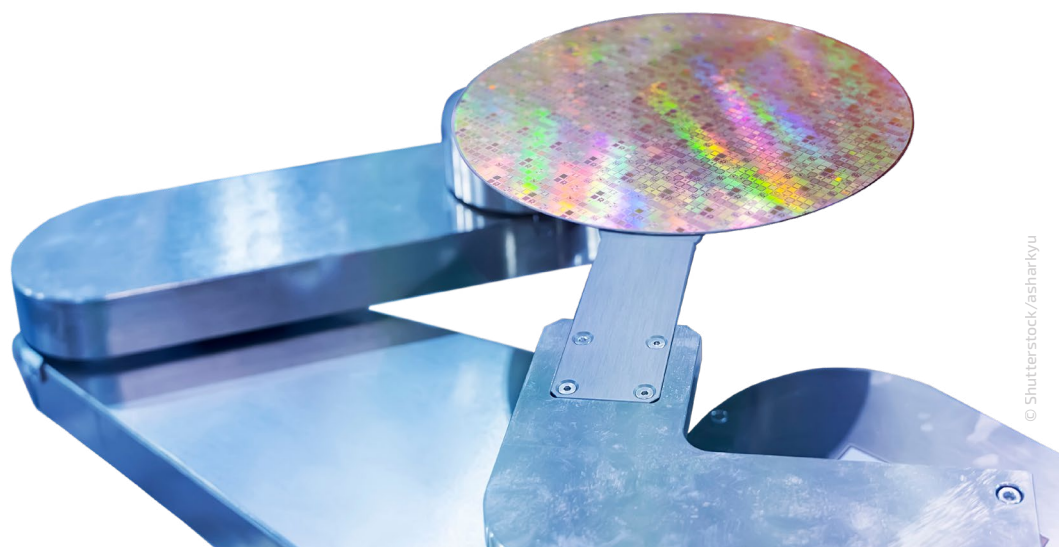
- › Diagnosis of all digital and analog in-/outputs
- › Manual control of channels

### System diagnosis

- › Track all control processes directly at the equipment
- › Opportunity for live debuggig

### Logging

- › Data logging and job logging
- › Domain and debug logging



# Your way to equipment control

As a full-service provider with more than 30 years of experience in software development of equipment controls we offer you the complete software engineering, from consulting, specification, realization, testing to commissioning and maintenance. In order to achieve the objectives, we support you - in which way and to what extent is entirely up to you.

## Joint development

Together with you we develop your equipment control based on the software framework ToolCommander® and support you up with training, consulting and support. This way you remain flexible and distribute your work packages according to your time capacities and experience.

## Independent development

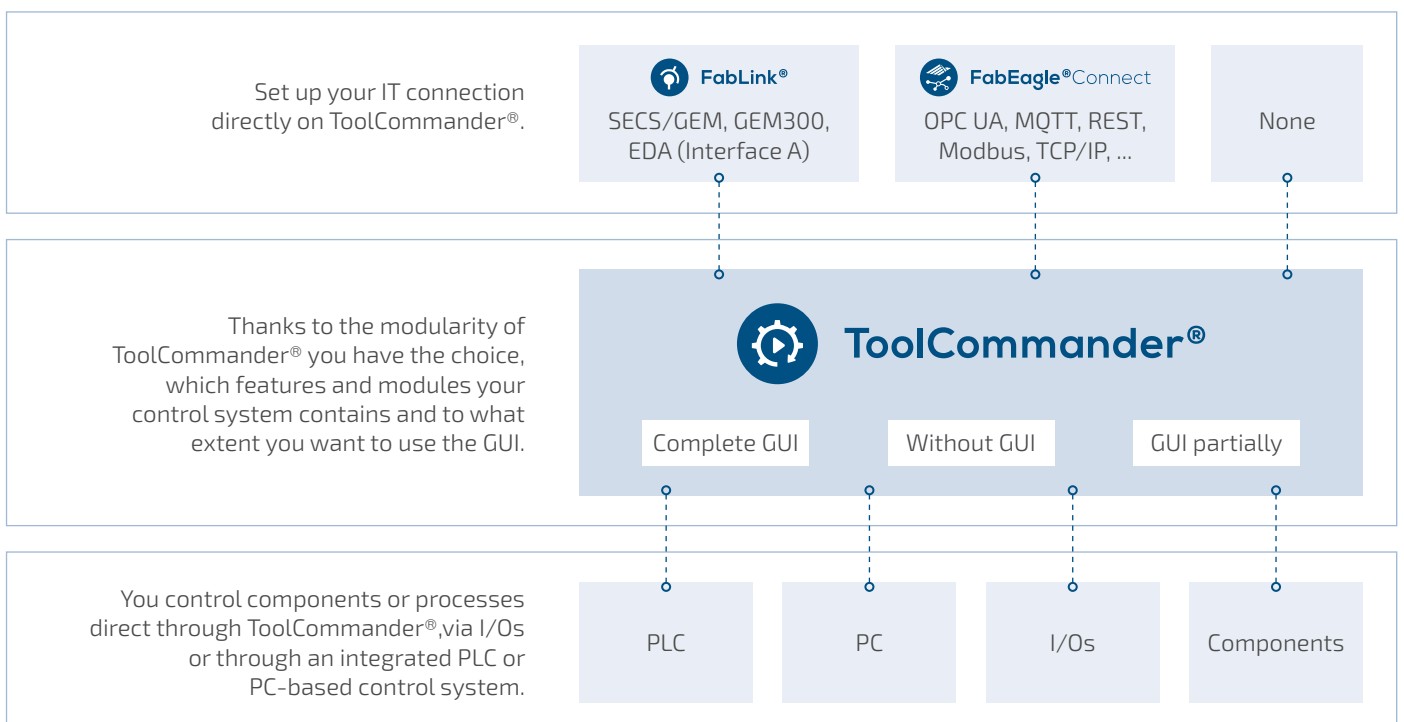
Develop your equipment control with the software framework ToolCommander® entirely on your own and completely independent. If requested, we offer you training, consulting and support.



## Outsourced

If you have insufficient time and experience, feel free to call on our over 30 years of know-how in programming equipment control systems for mechanical engineering. We will develop your ToolCommander® based equipment control precisely to your requirements.

Determine the individual scope of your ToolCommander® equipment control and integrate your equipment with the suitable industry-compliant connectivity solutions. Adaptations and extensions due to new requirements or external regulations can be implemented at any time, even after the project has been completed.





### Modular design

Fast implementation and customization



### Industry independent

e. g. semiconductor, photovoltaic and thin film industry



### Open framework

Enables in-house developments

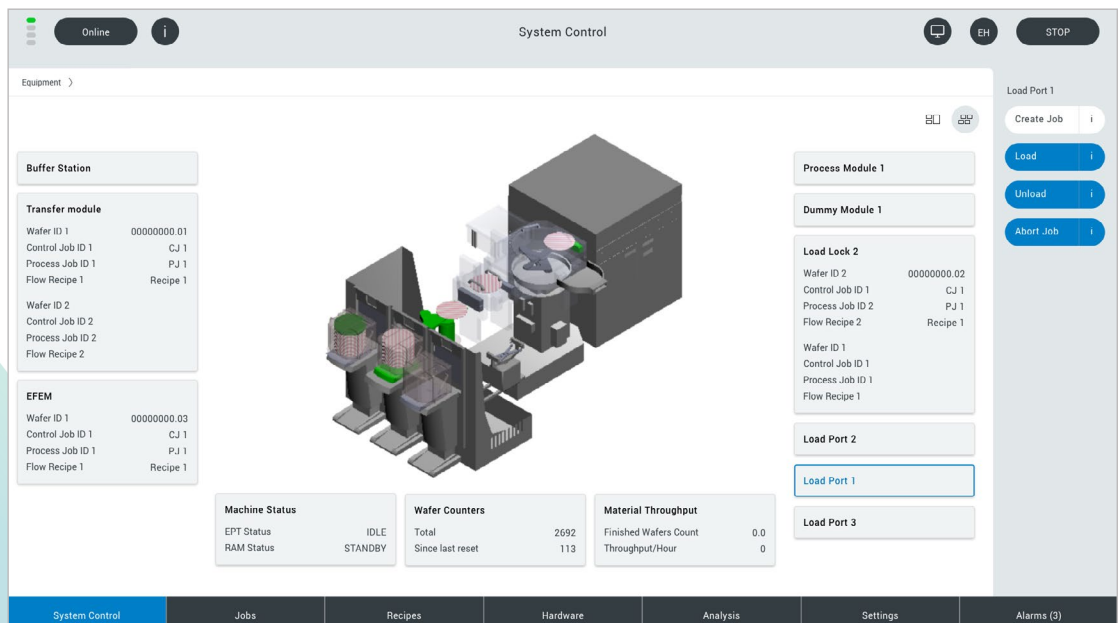
## 5 reasons ...

### ... why your customers will be happy to have ToolCommander® on your equipment

- › **Intuitive HMI design:** modern and consistent touch-optimized
- › **Powerful diagnostic tools:** Unique interlock-handling as well as I/O diagnosis and system diagnosis enable live-debugging for fast troubleshooting
- › **Efficient commissioning and maintenance:** Full simulation capability as well as control and parameterization of individual components with simultaneous display of actual and target values
- › **Outstanding recovery mode:** focus on material recovery besides clean-out option
- › **Trend module:** effective process monitoring and optimization, quality assurance as well as predictive maintenance

### ... why your developers will be in love with ToolCommander®

- › **Active software framework:** Continuous development, regular enhancement of features and industry-specific adaptation to current developments and trends
- › **Consistent openness:** Easy adaptation to customer requirements and fast implementation of own developments
- › **Early and effective testing options:** Complete simulation capability based on I/Os and hardware endpoints for easy exchange of simulated components
- › **Powerful debugging:** Unique interlock-handling as well as I/O diagnosis and system diagnosis enable live-debugging for fast troubleshooting
- › **SEMI standard compliance:** Compliant implementation of SEMI-standards by integrated functionality





## Kontron AIS GmbH

Kontron AIS GmbH sets the benchmark in industrial software – for more than 30 years and with an experienced team of over 250 employees. The proven software products and customized digitalization solutions enable machine and equipment builders as well as factory operators to break new ground in automation and secure long-term competitive advantages. Together with its customers, Kontron AIS implements worldwide cross-industry, intelligent digitalization strategies and solutions for the smart manufacturing of tomorrow.

As a subsidiary of the Kontron AG, Kontron AIS offers integrated, end-to-end IoT concepts consisting of hardware and software as well as worldwide project management, service, and support thanks to a global network.



Software Development



Consulting and Requirement Engineering



Project Management and Training



Supply of Hardware for Control and IT Systems



On-Site Installation and Commissioning



Flexible, Global Service and Support

Kontron AIS GmbH  
Otto-Mohr-Straße 6  
01237 Dresden  
Germany

Phone +49 (0)351 2166 0  
Fax +49 (0)351 2166 3000

**We are at your service:**  
[contact@kontron-ais.com](mailto:contact@kontron-ais.com)

**More information:**  
[www.kontron-ais.com](http://www.kontron-ais.com)

THE BENCHMARK IN INDUSTRIAL SOFTWARE