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ToolCommander®

The Open Equipment Control Software Framework

ToolCommander® is an open software framework for equipment control and visualization in equipment manufacturing – specifically designed for the semiconductor and coating industries. It supports cluster tools as well as inline and batch systems. Thanks to its modular architecture, equipment can be flexibly and efficiently adapted to the individual requirements of a wide range of industries.

Your Benefits

Fast market entry

- › Shorter time-to-market thanks to flexible implementation models
- › Efficient implementation through integrated test framework
- › Full simulation capability

Unique transparency

- › Fully touch-optimized SEMI E95 HMI for quick access
- › Comprehensive diagnostic tools, unique interlock handling and system diagnosis for live debugging

Modular, open and flexible

- › Development based on modern frameworks: C#/.NET and WPF visualization
- › Consistent openness through comprehensive APIs
- › Flexible coding with or without our support

Security and compliance across all areas

- › Know-how protection through in-house developments
- › Compliance with industry-specific cybersecurity standards

Supported SEMI Standards at a Glance

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)

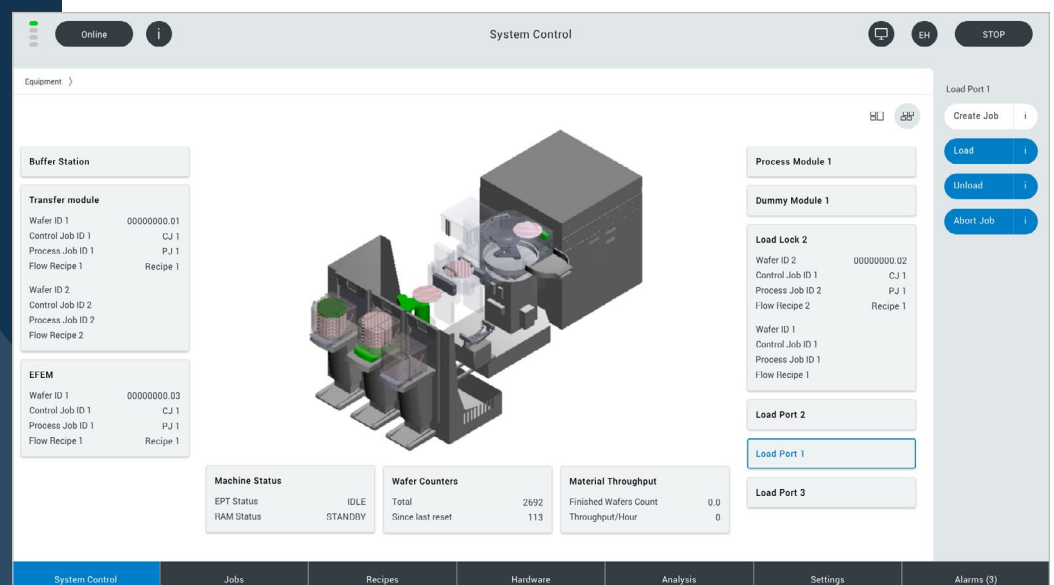
- › E120 – Common Equipment Model
- › E125 – Equipment Self-Description
- › E128 – XML Message Structures
- › E132 – Authentication and Authorization
- › E134 – Data Collection Management
- › E138 – SEMI Common Components
- › E145 – Measurement Unit Symbols in XML

Common Standards

- › E95 – GUI Specification in Semiconductor Manufacturing
- › E148 – Time Synchronization and TS-Clock
- › E167 – Equipment Energy Saving Mode Communications (EESM)
- › E172 – SECS Equipment Data Dictionary (SEDD)

Cybersecurity

- › E187 – Cybersecurity of Fab Equipment
- › E188 – Malware Free Equipment Integration
- › E191 – Computing Device Cybersecurity Status Reporting



Modules

Basic functionality

User management

- › Integrated user administration with role management and configurable user authorizations, including secure export and import of user sets
- › Multi-HMI access with a secure login system and rights concept

Alarm management

- › Full transparency on all alarms, warnings and messages
- › Integration of individual alarm-related functions

Trend

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

Diagnosis and troubleshooting

I/O-diagnosis

- › 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 debugging

Logging

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

Visualization

GUI via WPF

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

Control

Scheduling

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

Material management

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

Job management

- › Order 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

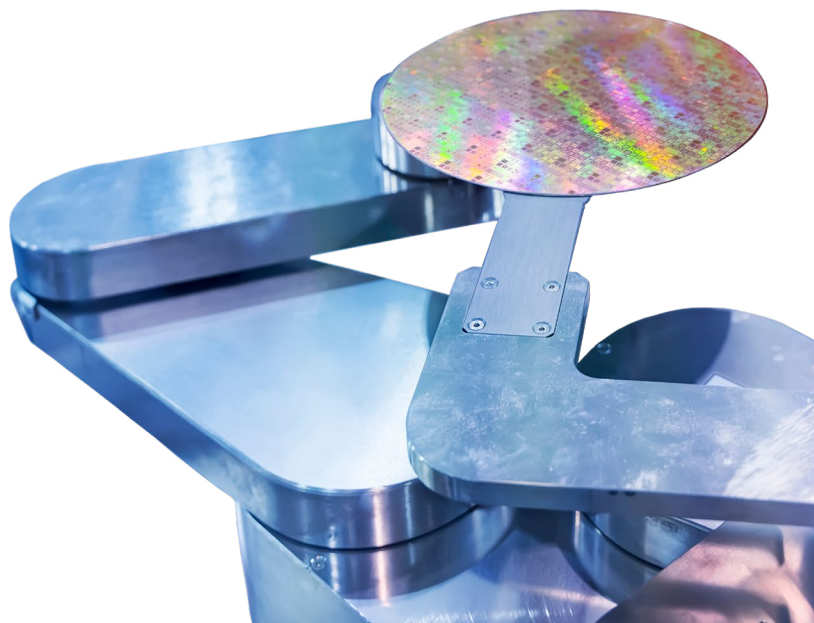
Commissioning and service

Simulation and test

- › Full simulation capability
- › Test framework for effective testing of in-house developments
- › Manipulation of single parameters for test cases

Manual operation

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



Your way to equipment control

As a full-service provider with more than 35 years of experience in programming equipment controls, we offer you complete software development, from consulting, specification, implementation and test phase through to commissioning and maintenance. We will support you to achieve your goal - how and to what extent is entirely up to you.

Full Kontron AIS development

If time or expertise is a constraint, we are your dependable partner, providing reliable support and tailored solutions. With more than 35 years of experience in equipment control programming, we deliver customized solutions that meet your exact needs and keep your production processes running smoothly.

Independent development

With ToolCommander® you can develop your equipment control independently and flexibly, using our extensive component library to select exactly the building blocks you need. The open framework offers maximum flexibility so your equipment control can be tailored to your specific needs. We are always available for training, consulting and support.



Collaborative development

We work with you to develop your equipment control on ToolCommander®. Thanks to the open software framework and extensive component library, you determine how much support you need from us. We provide training, consulting, and support to ensure flexibility so you can allocate tasks based on time and experience.

What our customers say about ToolCommander®



„We trust in ToolCommander® for the control of our systems. Equipment control including process control, GUI and host interface - The combination of already available and Trymax specific functions gives our equipment a clear added value.“

Enrico Schellekens,
Product Manager, Trymax Semiconductor Equipment B.V.

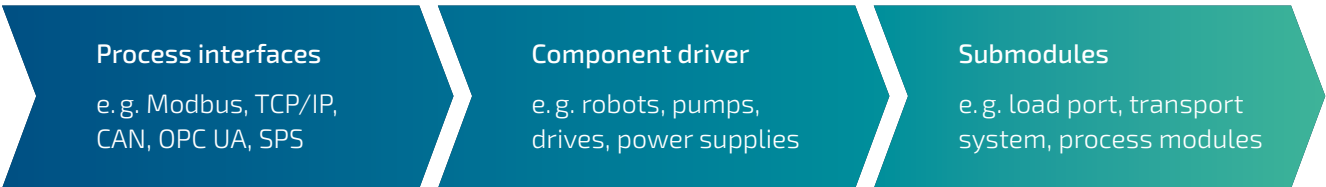


„The ToolCommander® control system for automated loading of our stackable furnaces and SEMI-compliant system integration via FabLink® have paved the way into the semiconductor industry and given fabs access to our compact and cost efficient furnace technology. We will continue to work together in the future and are already implementing further joint projects.“

Sabrina Radoske,
Technical Sales Manager Heat Technology, Weiss Technik GmbH

Modular expandability: standard components and customized solutions

The extensive ToolCommander® component library enables the integration of preconfigured submodules associated component drivers via various interfaces. In addition, the platform offers the option of developing and seamlessly integrating your own software components – for easy extension with individual function modules.



Integrated automation suppliers and component manufacturers

Whether robots, aligners or ID readers: we integrate automation solutions from leading manufacturers – reliable, tried, tested and tailored to your requirements. Here is an excerpt of our integrated suppliers:

Automation provider:

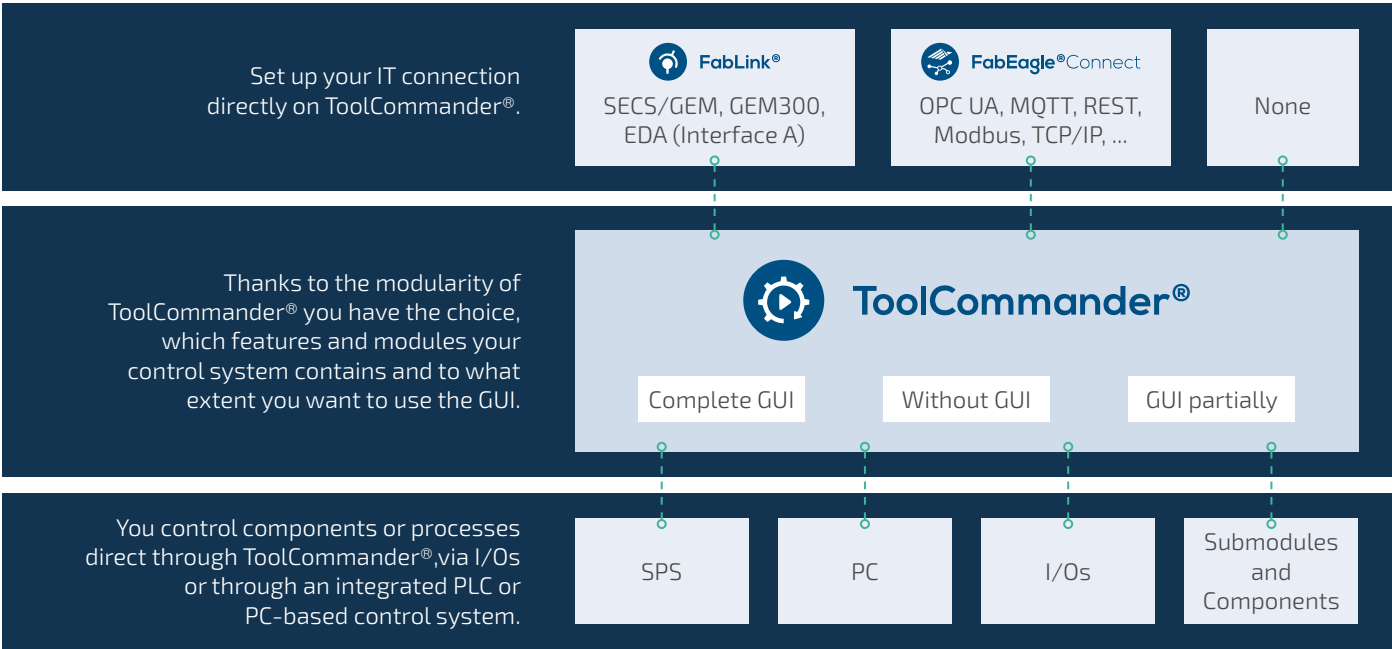


Component manufacturer:



Integration of ToolCommander® into your Fab-IT

Assemble your ToolCommander® equipment control individually according to your requirements and integrate your equipment with the appropriate connectivity solutions in compliance with standards. On request, you can also use our own **FabLink®** solution for a SEMI-compliant connection. Thanks to the modular structure of ToolCommander®, you remain flexible: adaptations and extensions are possible at any time, even after project completion – regardless of whether due to new requirements or external specifications.



Kontron AIS GmbH

For over 35 years, we have been setting the benchmark in industrial software development. Our proven software products and customized digitalization solutions are backed by an experienced team of more than 250 employees. We enable equipment manufacturers as well as factory operators to break new ground in automation and secure long-term competitive advantages. Together with our customers, we implement intelligent digitalization strategies worldwide, paving the way for the smart manufacturing of tomorrow.

As a subsidiary of Kontron AG, we provide comprehensive IoT solutions from a single source – covering both hardware and software. Our global network ensures project management, service and support on a global scale.



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

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