

# Velkommen til Siemens Webinar: Simit Simulation Framework

**Velkommen! Vi begynner 10:05**

- Vi tar opptak av webinarret (blir delt senere)

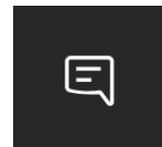


- Anbefaler aktivering av full-skjerm:



Fullskjermmodus

- Vi tar gjerne spørsmål i chatten og vi går gjennom disse til slutt.



The background of the advertisement shows a man and a woman in a control room or office setting, looking at multiple computer monitors. The screens display complex industrial process flow diagrams and data. The overall scene is dimly lit, with the primary light source being the screens and some ambient blue light. The Siemens logo and tagline are in the top right corner. A large teal banner with white text is in the lower-left quadrant. The bottom of the image has a white bar with copyright and website information.

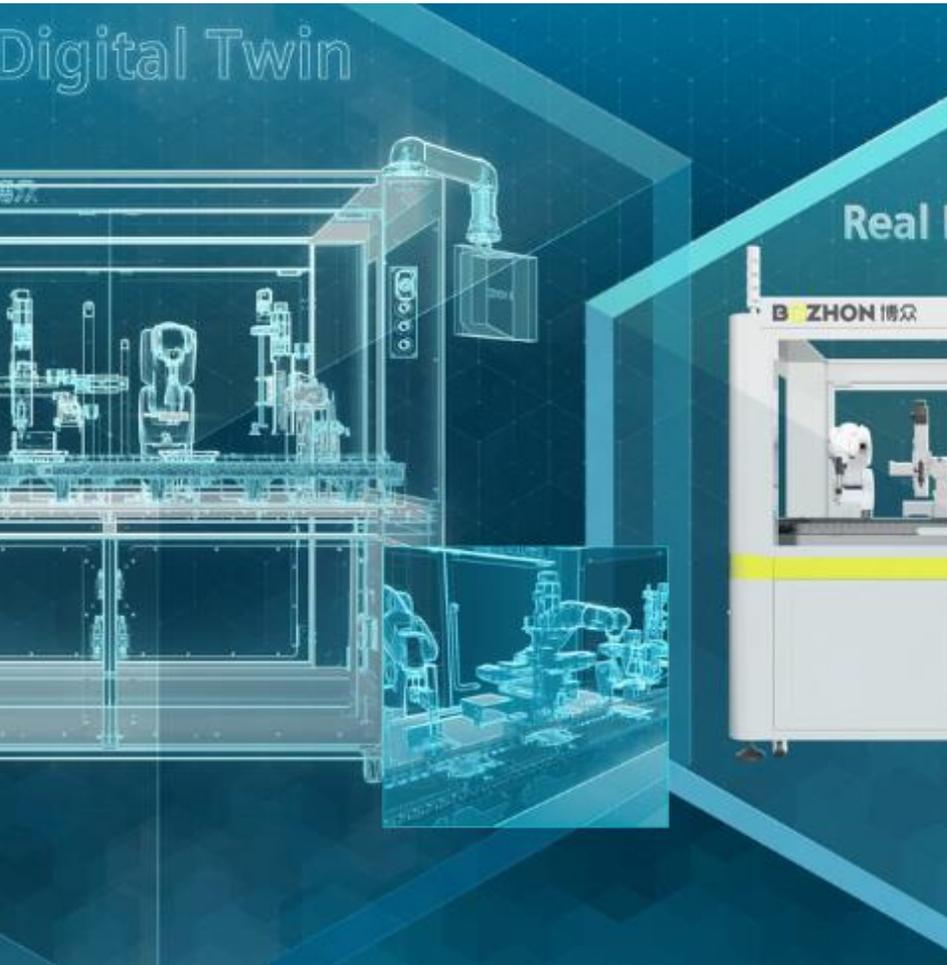
**SIEMENS**  
*Ingenuity for life*

# Simit Simulation Framework

Optimize your plant,  
increase your competitiveness

Unrestricted © Siemens AG 2018

[siemens.com/simit](http://siemens.com/simit)



SIMATIC PCS 7

S7-400 PLS med tilbehør

ET 200iSP – Egensikker I/O for montering i Ex sone 1

ET200SP HA – robust og fleksibel I/O med fokus på tilgjengelighet

Feltbussløsninger for prosessinstrumentering

Prosess-sikkerhet

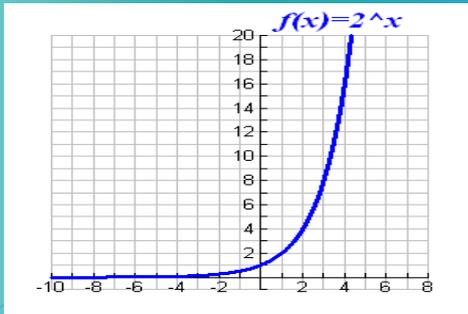
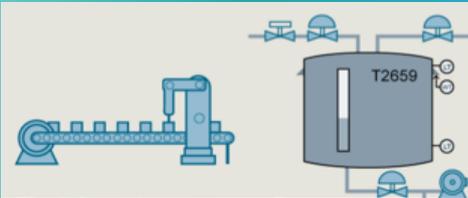
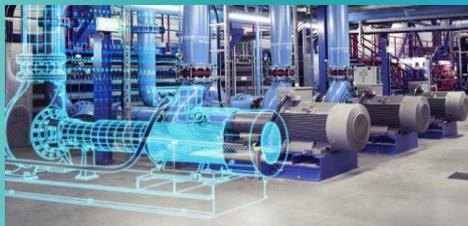
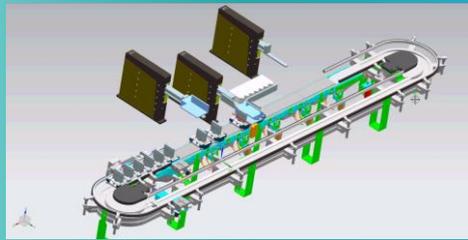
Simulering med SIMIT Simulation Framework

- **Utvidet test/feilsøking før nedlasting av endring, eventuelt før FAT/SAT**
- **Operatøropplæring og erfaringsoverføring mellom skift**
- **Prosessoptimalisering, test av ulike parametre og driftssituasjoner underveis i programkonfigurering.**
- **Kontinuerlig evaluering av drift (gi operatør eller kontrollsystem direkte beslutningsdata basert på simulerte scenarier)**
  
- **Det er viktig å definere hva man ønsker å oppnå tidlig!**

# Simulering av et automatisert anlegg

**SIEMENS**  
*Ingenuity for life*

## Modell

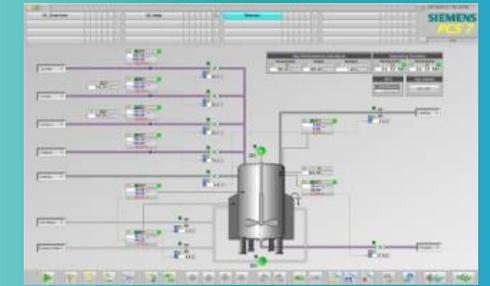


**PLS-program**  
PLC-sim (classic)  
PLC-sim Advanced  
Virtual Controller  
HW-PLS med "Simulation Unit"

I/O

HMI/PLS kobling

**Grensesnitt for test**  
Feil på utstyr  
Feil fra operatør  
Test av avhengigheter, forriglinger,  
sekvenser, alarmer, teste forskjellige  
parameteroppsett, teste tidsfaktorer  
...OSV



# Koblinger til SIMIT

## Hardware-in-the-Loop

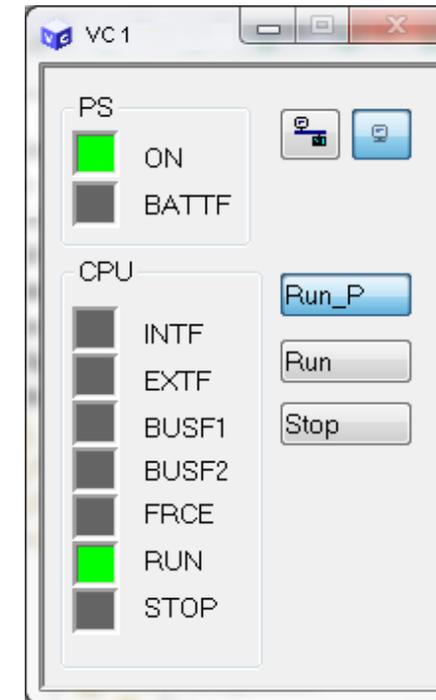
- Koble til Profibus eller profinet via Simit Unit

## Software-in-the-Loop

- S7-1500 via PLCsim Advanced
- S7-300/400 i classic via PLCsim
- S7-300/400 kan emuleres av SIMIT Virtual Controller

## Datakoblinger

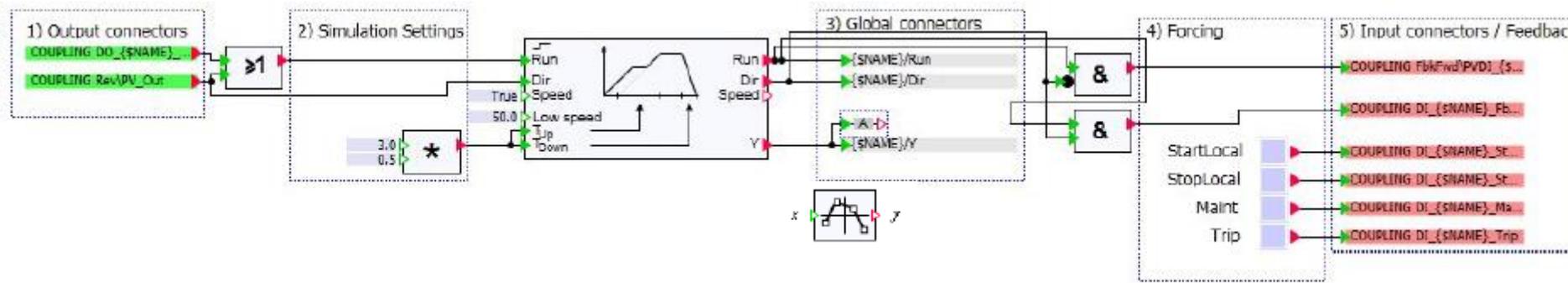
- OPC
- Shared Memory for kommunikasjon med annen SW
- Remote control interface



# Live Demo



# SIMIT som simulator (Modell og Grensesnitt for test)



**Motor#1**

0 100 0.0 %

<input type="checkbox"/> Local active	<input type="checkbox"/> Start	<input type="checkbox"/> Local
<input type="checkbox"/> Lock active	<input type="checkbox"/> Stop	<input type="checkbox"/> Maintenance
		<input type="checkbox"/> Trip

**PROFdrive1#1**

	STW1	ZSW1
On	<input type="checkbox"/>	<input type="checkbox"/> Ready To Switch On
No Coast Stop	<input type="checkbox"/>	<input type="checkbox"/> Ready To Operate
No Quick Stop	<input type="checkbox"/>	<input type="checkbox"/> Operation Enabled
Enable Operation	<input type="checkbox"/>	<input type="checkbox"/> Fault
Enable RFG	<input type="checkbox"/>	<input type="checkbox"/> No Coast Stop
Unfreeze RFG	<input type="checkbox"/>	<input type="checkbox"/> No Quick Stop
Enable Setpoint	<input type="checkbox"/>	<input type="checkbox"/> Switching On Inhibited
Fault Acknowledge	<input type="checkbox"/>	<input type="checkbox"/> Warning
8	<input type="checkbox"/>	<input type="checkbox"/> Speed Error Within Tolerance
9	<input type="checkbox"/>	<input type="checkbox"/> Control Requested
Control by PLC	<input type="checkbox"/>	<input type="checkbox"/> Speed Reached
11	<input type="checkbox"/>	<input type="checkbox"/> 11
12	<input type="checkbox"/>	<input type="checkbox"/> 12
13	<input type="checkbox"/>	<input type="checkbox"/> 13
14	<input type="checkbox"/>	<input type="checkbox"/> 14
15	<input type="checkbox"/>	<input type="checkbox"/> 15

**Infeed\_Tel\_370**

	E_STW1	E_ZSW1
On	<input type="checkbox"/>	<input type="checkbox"/> Ready To Switch On
No OFF 2	<input type="checkbox"/>	<input type="checkbox"/> Ready To Operate
2	<input type="checkbox"/>	<input type="checkbox"/> Operation Enabled
Enable Operation	<input type="checkbox"/>	<input type="checkbox"/> Fault
4	<input type="checkbox"/>	<input type="checkbox"/> No OFF 2 active
Inhibit motoring operation	<input type="checkbox"/>	<input type="checkbox"/> 5
Inhibit regenerative operation	<input type="checkbox"/>	<input type="checkbox"/> Switching On Inhibited
Fault Acknowledge	<input type="checkbox"/>	<input type="checkbox"/> Warning
8	<input type="checkbox"/>	<input type="checkbox"/> 8
9	<input type="checkbox"/>	<input type="checkbox"/> Control Requested
Control by PLC	<input type="checkbox"/>	<input type="checkbox"/> 10
11	<input type="checkbox"/>	<input type="checkbox"/> Pre-charging completed
12	<input type="checkbox"/>	<input type="checkbox"/> Line contactor closed
13	<input type="checkbox"/>	<input type="checkbox"/> 13
14	<input type="checkbox"/>	<input type="checkbox"/> 14
15	<input type="checkbox"/>	<input type="checkbox"/> 15

# Biblioteker

## Simulation STANDARD Library

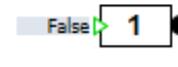
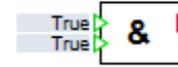
Library containing simulation models for

- Motors, valves
- Frequency converters
- Mathematical models
- ...

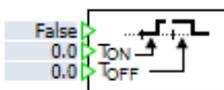
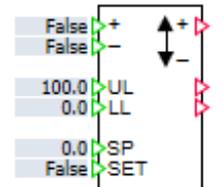
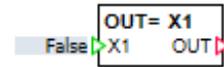
### AnalogBasic



### BinaryBasic



### BinaryExtended



**SIMIT**

Components

- Basic components
- COMMUNICATION
- CONNECTORS
- CONTEC
- DRIVES
- FLOWNET
- SENSORS
- STANDARD**
  - AnalogBasic
  - AnalogExtended
  - BinaryBasic
  - BinaryExtended**
    - BFormula
    - Counter
    - Delay
    - Multiplexer\_B
    - Pulse
    - RS\_FF
    - Selection\_B
    - SR\_FF
  - Conv
  - IntegerBasic
  - IntegerExtended
  - Math
  - Misc

Controls

Macros

Graphic

Templates

# Biblioteker

## Simulation FLOWNET Library

- Library to build models in the schematics of a P&ID
- Library to simulate a piping network with single component liquids/gas (e.g. water) including pressure, temperature and flow

**General**

- Valve
- Tee
- M
- Net

**Measure**

- FI
- LI
- MEASUREMENTS: Pressure, Temperature, Flow, Level, Weight

**Medium**

- Heat Exchanger
- Heat Exchanger
- Tee

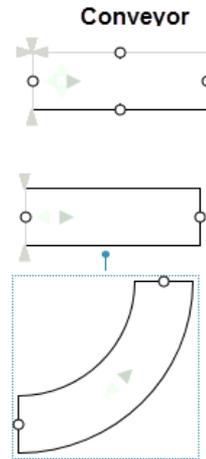
**SIKIT Components**

- Basic components
- COMMUNICATION
- CONNECTORS
- CONTEC
- DRIVES
- FLOWNET**
  - GENERAL
  - MEASURE
  - MEDIUM
    - GAS**
      - ElectricalHeaterGas
      - HeatExchangerGas
      - JointGas**
      - JointParamGas
      - MnodeGas
      - NetGas
      - PnodeGas
      - StorageTankGas
    - LIQUID
    - WATER.STEAM
  - SENSORS
  - STANDARD

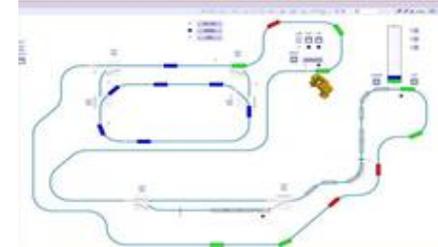
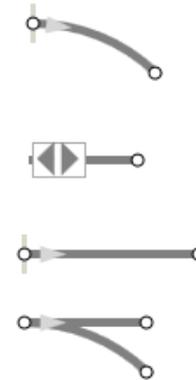
# Biblioteker

## Simulation CONTEC Library

Library to build conveyor simulation models



### Rails



**SIMIT**

Components

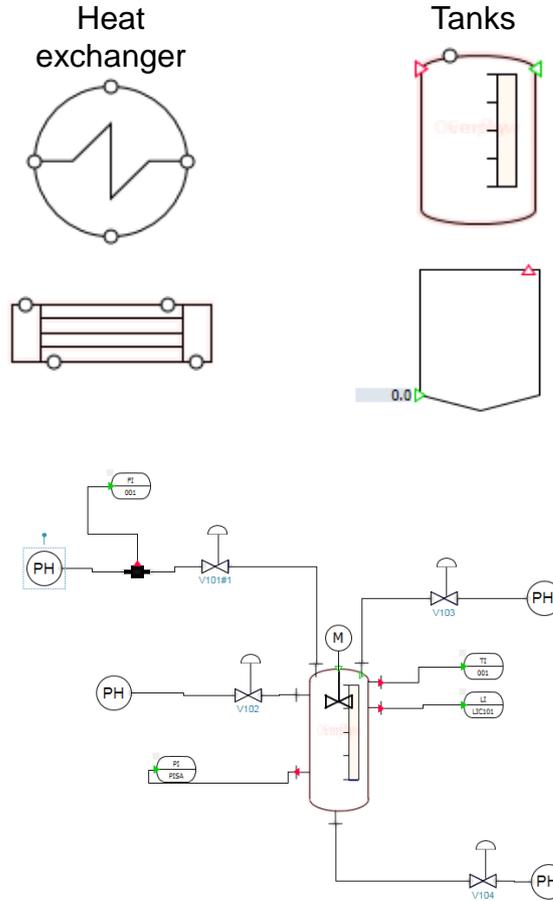
- Basic components
- COMMUNICATION
- CONNECTORS
- CONTEC**
  - CONVEYOR
  - MATERIAL
  - RAILS**
    - CurvedRail45-S4
    - CurvedRail90-S4
    - InOut
    - Rail-S4
    - RailLifterBase
    - RailLifterExtension
    - RailSwitch-F
    - RailSwitch-M
- DRIVES
- FLOWNET
- SENSORS
- STANDARD

Components | Controls | Macros | Graphic | Templates

# Bibliothek

## Simulation CHEM BASIC Library

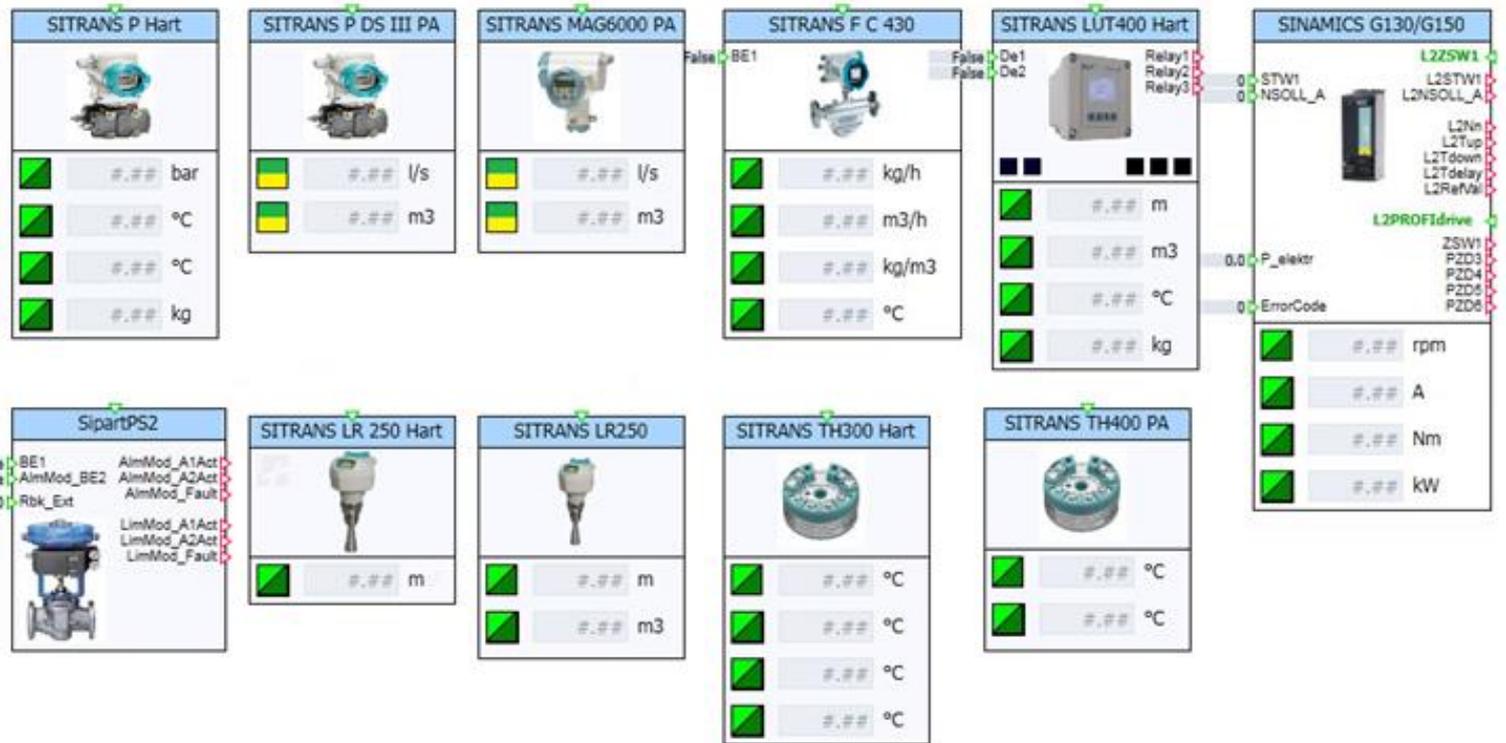
- For chemical or pharmaceutical plant simulation
- To build models in the schematics of a P&ID
- Import via the generic import the technological behavior out of COMOS P&ID
- Simulate a piping network with single (pseudo) component, liquids or gas (e.g. water) including pressure, temperature and flow



SIMIT Promotion	
Komponenten	
▼ Basiskomponenten	Komponenten Controls Makros Grafik Vorlagen
▼ CHEM-BASIC	
▶ Burners	
▶ Fittings	
▶ Graphics	
▶ Heatexchangers	
▶ Measurements	
▶ Mixing Apparatuses	
▶ Pumps	
▶ Separators	
▶ System	
▶ Tanks	
▶ Valves	
▶ COMMUNICATION	
▶ CONNECTORS	
▶ CONTEC	
▶ DRIVES	
▶ FLOWNET	
▶ SENSORS	
▶ STANDARD	

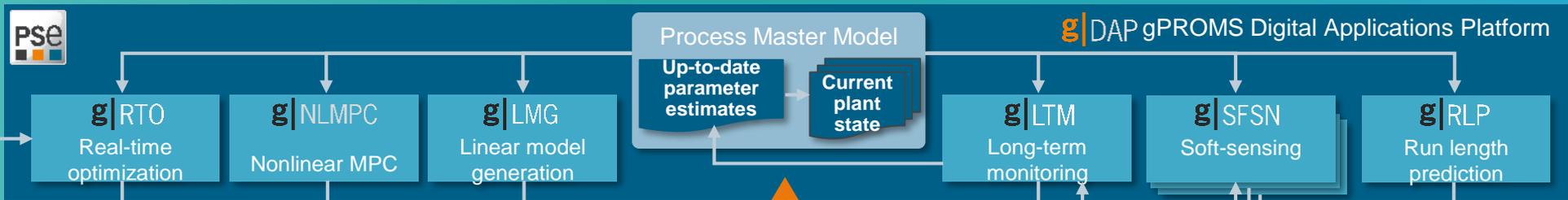
## Device models Siemens field device

- Specific field device models
- 11 models will be available in the first step
- Continuous update via SIOS
- Higher engineering quality by enabling early detection of errors and more comprehensive automation checks
- Faster commissioning including specific field device functions tested early w/o final hardware



# Monitoring & Optimization Level

(gPROMS Digital Applications)



# HMI Level

(PCS 7 OS)



# Automation Level

(Linear MPC, Advanced Control & Logic)



# Field Level

(Actors and Sensors)



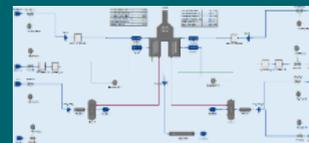
# Process Level

(Plant Behavior)

Real Plant



Digital Process Twin



Virtual Plant

# Eksempel på NX MCD koblet til SIMIT for test og til PLS

# SIEMENS

The image displays the Siemens NX MCD (Mechatronics Concept Designer) interface, which is integrated with SIMIT (Simulation Interface for Test and Production) for testing and PLS (Production Line Simulation). The main window shows a 3D assembly model of a complex mechanical system, likely a conveyor or assembly line, with various components highlighted in green and blue. The interface includes a menu bar (File, Home, Modeling, Assemblies, Curve, Analysis, View, Render, Tools, Application, 3Dconnexion), a toolbar, and a status bar at the bottom indicating "Elapsed time: 9 sec(s) - Actual Time Scaling: 1.000".

The SIMIT MCS (Mechatronics Control System) interface is visible on the right side, showing a "UserInterface" panel. This panel includes a "Projekt" (Project) section, a "Simulation" section, and a "Fenster" (Window) section. The "UserInterface" panel displays a "Ready" status, a "Stop & Reset" button, and a "Start" button. It also shows a list of "Package Carrier" components (1+2, 3+4, 5+6, 7+8, 9+10) with corresponding green status indicators. Below this, there are "Error Offset" and "Error Sync" indicators, each with a green checkmark icon. The "UserInterface" panel also features a "Projektnavigation" (Project Navigation) section with a list of components and their corresponding 3D models.

UserInterface		Eigens
Allgemein	Eigenschaft	Wert
	Name	UserInterface
	Breite	8
	Höhe	7
	Maßstab	1 pix : 1 mm
	Hintergrundbild	...

At the bottom of the SIMIT MCS interface, there is a navigation bar with buttons for "Portalansicht", "UserInterface", "Position", "Stations", and "Position\_1".

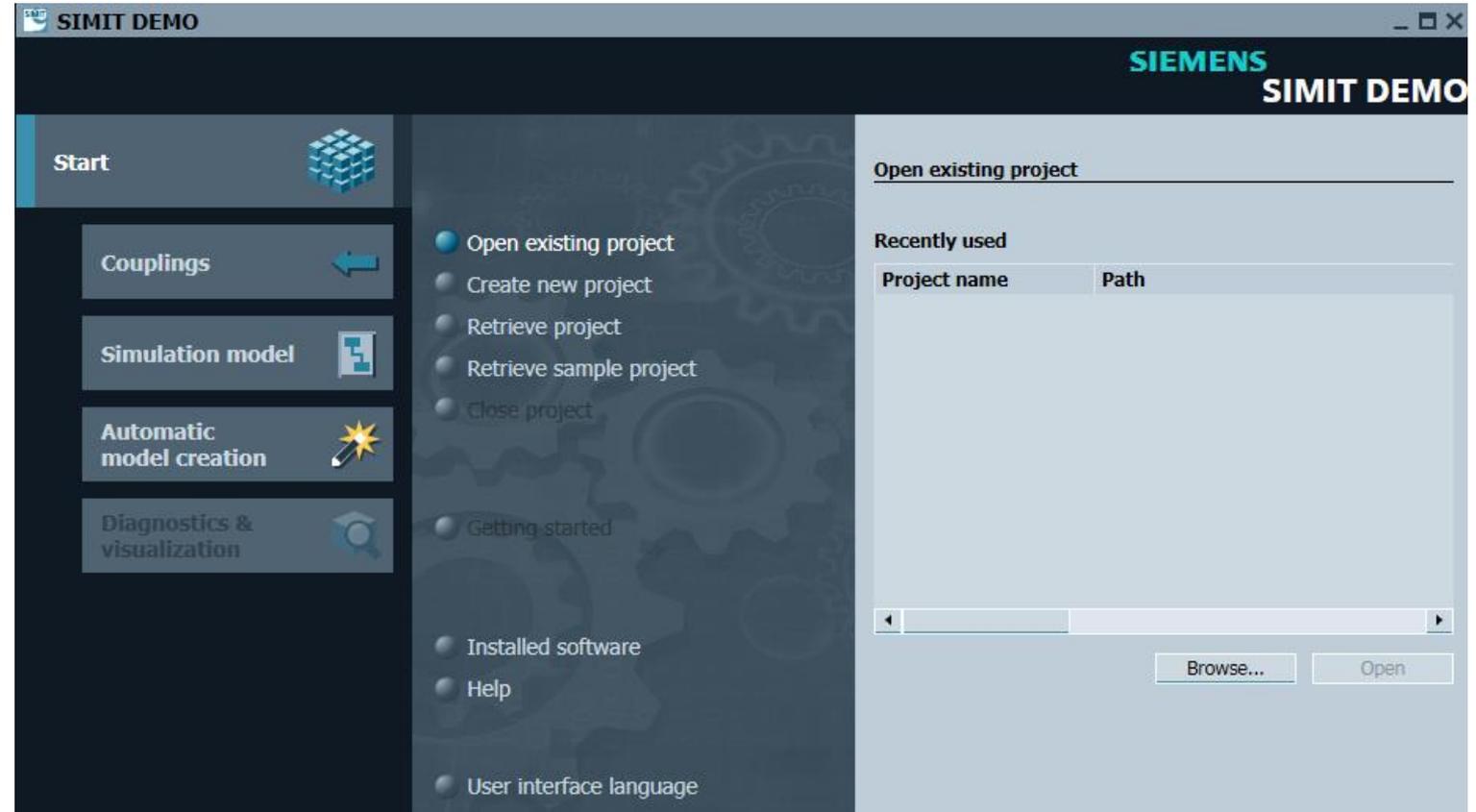
# Demo Version

## Simulation Demo Version

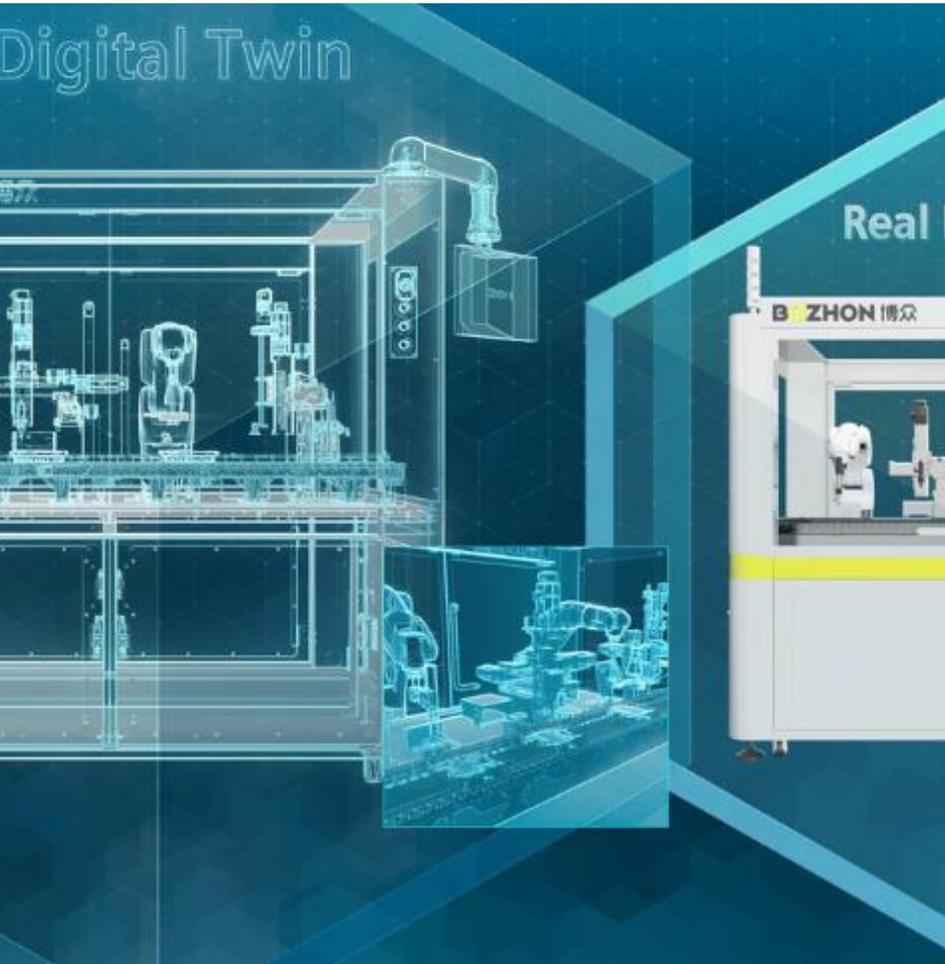
- Extended DEMO MODE 45 minutes, all couplings with a maximum of 30 bytes
- The dynamic graphic editor, the trend and messaging, the macro component editor, the SMD-typical import and the automatic control interface will be available for testing during the demo session

<https://support.industry.siemens.com>

ID: 109738278



# Simit Simulation Framework



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Mobil: 4640 9590

Film om Simit:

<https://www.siemens.com/global/en/home/products/automation/industry-software/simit.html>