

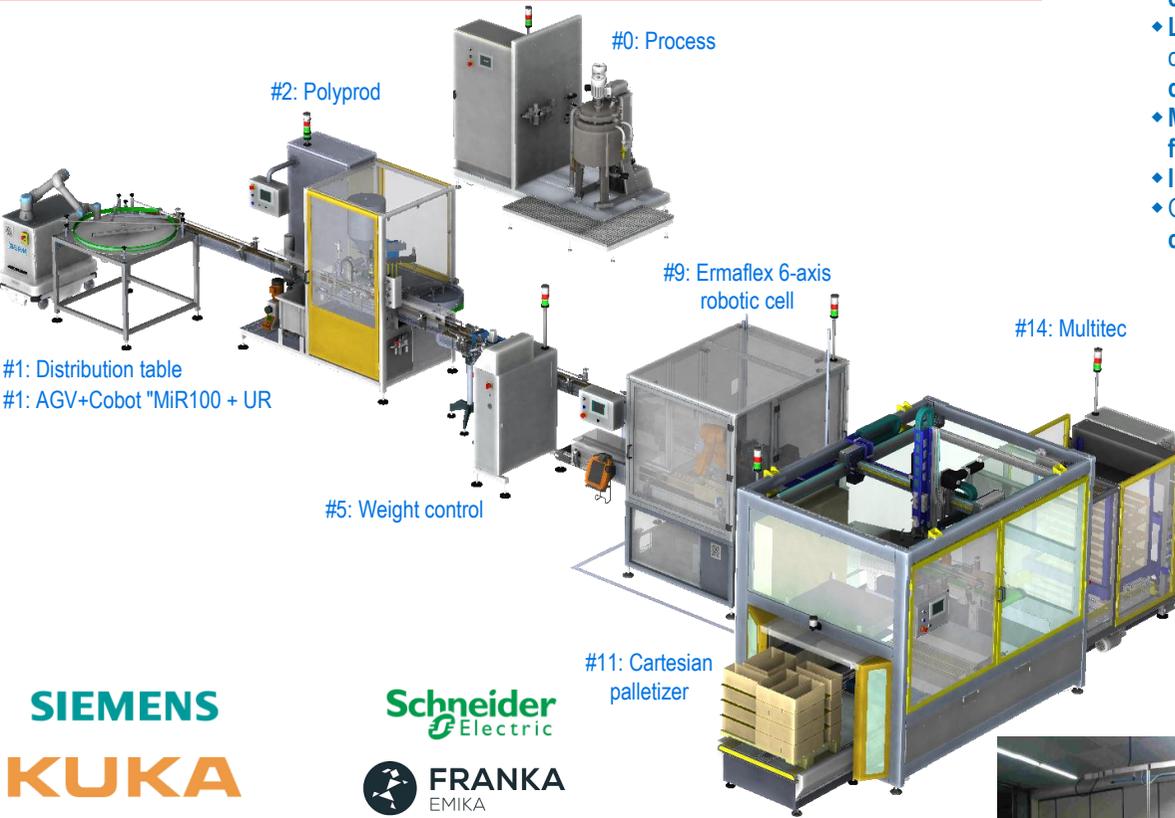
Evolutivité & Flexibilité
Personnalisation
Programmation simplifiée
Jumeau numérique
Robotique mobile
Robotique collaborative
Actionneurs efficaces
GPAO & GMAO
Instructions digitales
Supervision & MES
Contrôle qualité
« en ligne »
Vision
& capteurs intelligents
IOT & Communications

PRODUCTION
LINE
ERMAFLEX

 **ERM** AUTOMATISMES
Didactique | Robotique | Fab&Test | Energies

Production lines & Ermaflex systems

Ermaflex - Manufacturing, packaging and palletizing line multi-product and multi-format



Highlights:

- ◆ **Robust solution** (welded frames and adapted components), allowing numerous **assemblies, disassemblies and campaign changes**
- ◆ **Line structure** (integration of systems and peripheral components) and consumables (dimensions of jars, bottles, etc.) **can be adapted to suit budgets**
- ◆ **Multi-product use: granulated, liquid, semi-pasty and multi-formats: jars, bottles, cartons, trays**
- ◆ **Instant start-up** for easy activity preparation
- ◆ Operates with **recyclable consumables and requires no cleaning before or after use**

Integrated technical solutions

- ◆ PLCs, Touch Panels & Supervision Siemens and Schneider
- ◆ Visual instructions & MES Tulip
- ◆ IO-Link smart sensors & Sick Industrial IoT Gateway
- ◆ KUKA industrial robot
- ◆ Universal Robots, Franka, Omron or Dobot Robotic collaborative robots
- ◆ 3D Cartesian robot
- ◆ Sick light curtains
- ◆ Augmented reality Diota
- ◆ Virtual reality Virtual Indus
- ◆ Virtual Universe Pro 3D digital twin

www.erm.li/emf



Themes
"Industry 4.0 covered"

Scalability & Flexibility

Personalization

Simplified programming

Digital twin

Mobile robotics

Collaborative robotics

Efficient actuators

CAPM & CMMS

Digital instructions, Supervision & MES

Quality control "online"

Vision & Smart Sensors

IOT & Communications

Big Data, AI & Predictive Maintenance

Augmented reality

Virtual reality

Additive manufacturing for tooling...

SIEMENS

Schneider Electric

KUKA

FRANKA EMIKA

UNIVERSAL ROBOTS

MiR MOBILE INDUSTRIAL ROBOTS

TULIP

SICK Sensor Intelligence.

DOBOT

DIOTA AUGMENTING INDUSTRIES

IO-Link

OMRON

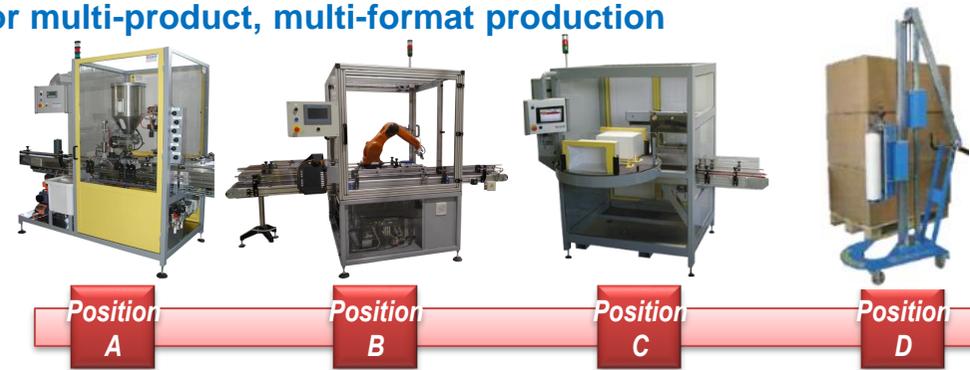
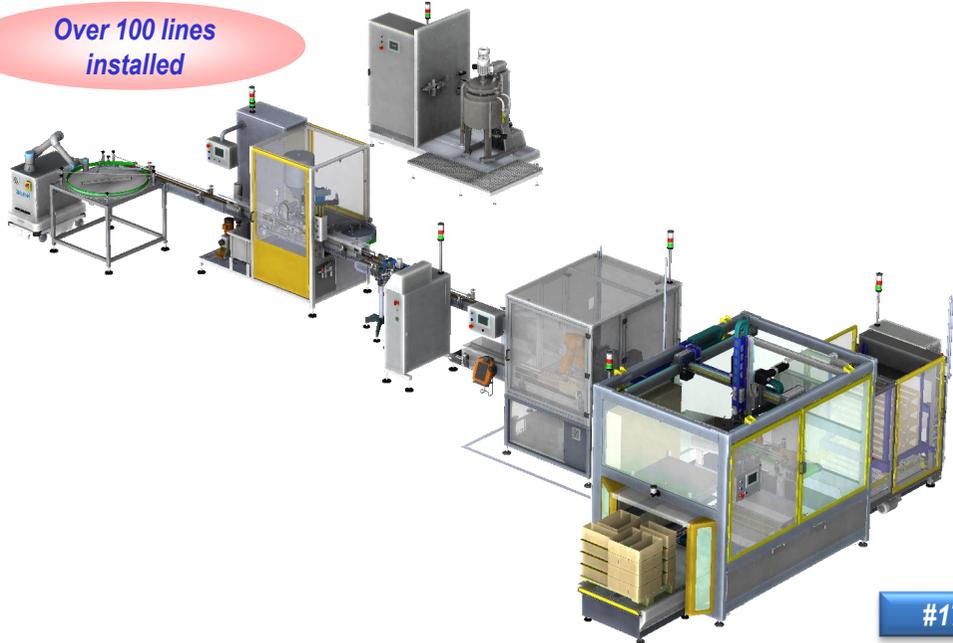
What is Ermaflex?

- Ermaflex is a **didactic production line** made up of **stand-alone, modular systems** that can be operated separately.
- Each customer is free to **create a line to suit his or her needs and budget.**
- Ermaflex uses **electrical, pneumatic, hydraulic and mechanical technologies**
- Ermaflex covers the teaching of **production management, industrial maintenance and automation/robotics.**

- Analyze (action and acquisition chains, regulation and servo-control, etc.)
- Design (automation, robotics, 3D construction solutions, module extensions, etc.)
- Management (production, line operation, line reconditioning following a change in production format, supervision)
- Maintenance (assembly and disassembly, adjustments, wiring and connection, diagnostics, prevention, improvements, etc.)
- Production management (scheduling, control charts, Lean SixSigma, etc.)

Modular, scalable, connected production line for multi-product, multi-format production

Over 100 lines installed



Production line Ermaflex R



Diota: Augmented Reality
Visual procedures

#17 Odoo: ERP, CAPM, CMMS

#16 TULIP: Visual instructions & Indicator tracking (Mini-MES)

RFID: Traceability

#15 PC Vue: Supervision

Industrial IoT
Big data, Predictive maintenance

#14 Multitec

#0 Cobot station & Vision

#0 Process

or
#0 AGV+ Cobot "MiR100 + UR"

Feeding the table with jars/flasks

#1 Table de distribution

Pots, empty bottles

#2 Polyprod

or
#3 Doser Filler

#4 Capper cam-type

Liquid, pasty
Semi-pasty

Transfer pump

Process Control

Jars / Bottles, filled and capped with or without control, label, over-lid

#5 Control weight

#6 Labeler

#7 Station Cobot & Vision

Customization of jars / bottles with an overcap

Cards, trays

#9 Cell 6-axis robot
Vision control
Traceability

Cardboard

#8 Grouping Cashing

Carton jars / bottles / trays

Jars / Bottles in trays

#11 Cartesian Palletizer or #12 Robotics

Pallet of cartons or trays
Large cartons of trays

#10 Cartoning machine

#13 Manual palletizing

Nouveauté

#0: AGV + Cobot "Mir100 + UR5 eSeries



Learning about mobile collaborative robotics, programming the 6-axis UR5e robot (850mm radius, 5kg load) and mobile MIR100 (max load 100kg, max speed 1.5m/s).

- MIR100 mobile platform with 2 individually controlled wheels and two lithium-ion batteries for mobile operation
- Bluetooth and Wi-Fi wireless communication
- Low and high detection cameras
- Set of bins for transporting parts
- Clamp or suction pad and on-board autonomous vacuum generator (Option)
- Schunk tool changer (Option)
- 2D machine vision Sensopart (Option)
- RFID traceability system (Option)
- Automatic recharging station (Option)



www.erm.li/ag10

Takeover of AGV mapping

Battery replacement

Resuming a robot trajectory

...

#0: AGV Mir100

Nouveauté



Learning mobile robotics, programming the MIR100 mobile robot (max load 100kg, max speed 1.5m/s)

- MIR100 mobile platform with 2 individually controlled wheels and lithium-ion battery for mobile operation
- Bluetooth and Wi-Fi wireless communication
- Low and high detection cameras
- On-board shelving system for parts transport
- Operator tablet holder
- Control panel
- 2^{ème} battery for extended autonomy (Optional)



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#1: Distribution table

The Dispensing Table feeds empty jars/vials to the Polyprod or Dosier conveyor.

The table is fed either by an operator, or by a Cobot & Vision Station, or by an AGV + Cobot "MiR100 + UR".

Cobot & Vision Station



www.erm.li/scu

AGV+Cobot "MiR100 + UR"



www.erm.li/ag10



www.erm.li/td

Robotic feeding of table in jars/flasks
SEE PAGE 9

#0: Process

The Ermaflex Process is an automated system for creating and manufacturing liquid, pasty and semi-pasty products.

- Schneider M340 PLC & Siemens KTP700 touch panel
- Triple-envelope stainless steel tank with regulated heating elements, mixers and water cooling
- Emulsion mixer and turbine
- Manual hydraulic lifting system
- Quick-clean bowl ball
- Manufacture several recipes (shower gel, detergent, etc.) and create your own.
- System representative of processes in the pharmaceutical, cosmetics and food industries



Manufacturing process control case



With viscometer, densimeter, pH tester, thermometer, portable balance, test tubes and several pH standard solutions.

TULIP

Malfunction box

IoT Sick Pack

www.erm.li/fa

#2: Polyprod

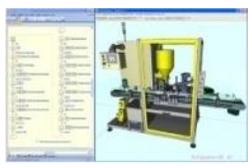
The Polyprod is an automated system for dosing liquid, pasty, semi-pasty or granulated products into jars/flasks and capping the jars/flasks.

- Schneider M340 PLC & Siemens KTP700 touch panel
- **Asi communication bus to sensors and valves**
- **Volumetric diaphragm filler (Liquids)**
- **Feeder with auger (pellets)**
- **Pneumatic gripper/screwing head (Cylinder and Motor)**
- **ILS, inductive, photoelectric, capacitive, fiber optic sensors**
- **Wide range of technologies and activities in production and maintenance management**
- Numerous options for maintenance activities



www.erm.li/pp

PLC & Touch Panel + Digital Twin in VU Pro



Programming in Schneider and Siemens environments, then simulation in the digital twin

Malfunction box

Breaded parts

IoT Sick Pack



HoloLens 2

Dosing pump adjustment & maintenance

Change of production format

Electrical diagnostics / communication / sensors / pneumatics

IoT deployment for operation monitoring

Performance analysis (cadence, dosage drift, etc.)

Conveyor maintenance

Improved tooling (3D Printing)

...

#4: Cam capper

Synchronized cap pick-and-place and jar/flask screwing operations

- S7-1200 PLC & KTP700 touch panel (Siemens)
- **Set of two cams** controlling the vertical translation of the screwing head and the rotation of the stopper removal device.
- **Pneumatic motors, cylinders and suction pads**
- **IO-Link intelligent sensors** 



Malfunction box

IoT Sick Pack

www.erm.li/bo

High-speed mechanical solution with advanced mechanical settings



Mechanical module Cam capper

Mechanical part of a cam capper for maintenance operations and adjustments

www.erm.li/mb



Cam system adjustment & maintenance

Change of production format

IO-Link intelligent sensor parameterization

Electrical diagnostics / communication / IO-Link sensors / pneumatics

Conveyor maintenance

Improved tooling (3D Printing)

...

#3: Doser Filler

The Filling Doser is a system for dosing liquid, pasty and semi-pasty products and semi-pasty products to fill jars/flasks.

- S7-1200 PLC & KTP700 touch panel (Siemens)
- Volumetric dosing pump
- Conveyor with pneumatic positioning cylinders

Malfunction box

IoT Sick Pack

www.erm.li/do



#6: Labeler

Application of self-adhesive labels to jars and bottles

Different versions:

- Labeller without on-the-fly printing
- Labeller with on-the-fly printing (QR-code...)

Mechanical settings & Parameters
(Positions, Voltages...)

www.erm.li/eq



#5: Checkweighing jars & bottles

Mass control of packaged products with ejection of non-compliant jars/flasks

- S7-1200 PLC & KTP700 touch panel (Siemens)
- Siemens scale and weighing card

On-line quality control and production indicators

www.erm.li/pf



PLC & Touch Panel + Digital Twin in VU Pro



Programming in the Siemens environment, then simulation in the digital twin

#8: Regroupement Encaissage

Cartoning jars and bottles.

- Schneider M340 PLC & Siemens KTP700 touch panel
- YZ 2-axis transfer system
- Gripper heads with pliers and suction pads
- Sensors (fiber optic, ILS, photoelectric, incremental encoder)

www.erm.li/re

2 container types, 2 gripper heads, 2 carton types

PLC & Touch Panel + Digital Twinner in VU Pro



Programming in Schneider and Siemens environments, then simulation in the digital twin



Malfunction box

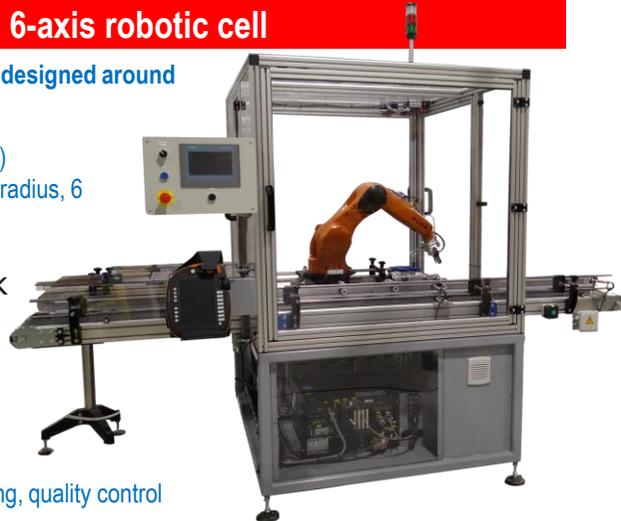
IoT Sick Pack



#9: Ermaflex 6-axis robotic cell

Packaging cell for jars/flasks in cartons/trays designed around a KUKA robot

- S7-1200 PLC & KTP700 touch panel (Siemens)
- **6-axis industrial robot** (Kuka Agilus, 700 mm radius, 6 kg load) with **Profinet communication card**
- **Gripper heads with pliers and suction pads**
- **IO-Link intelligent sensors**  **IO-Link**
- **Vision sensor for quality control in-line** (Screwing)
- **RFID transceiver** (Traceability)
- **Predictive maintenance** KUKA Connect
- **KukaSim, 3D simulation software** from Kuka
- Complete industrial packaging system (cartoning, quality control and traceability)
- Strong partnership between Kuka and ERM in education: **Organization of manufacturer training courses (2 modules offered)**

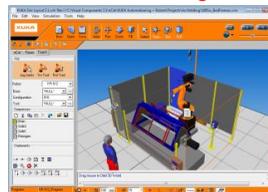


KUKA

www.erm.li/ro

 **TULIP**

PLC & Touch Panel + Digital Twin in VU Pro

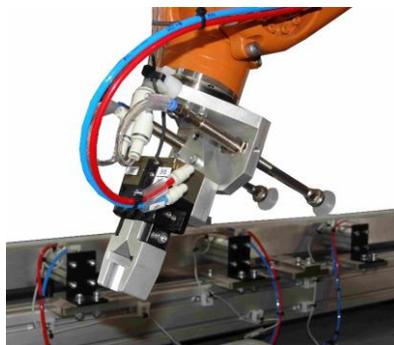


Programming in the Siemens environment, then simulation in the digital twin

IoT Sick Pack

Malfunction box

Breaded parts



Change of production format

Resuming a robot trajectory

Clearing a robot in manual mode

6-axis robot axis calibration

Vision settings

Electrical diagnostics / communication / sensors / pneumatics

Conveyor maintenance

Integration of a new format

...

#10: Cartoning machine

Packing different types of trays into large cartons

- S7-1200 PLC & KTP700 touch panel (Siemens)
- **Pneumatic lifter and pushers (4 cylinders)**
- Rotary table with **indexing cylinder** and safety sensor
- **Format changeover** (cartons and trays)
- **Cabinet equipped with a removable electrical board** for wiring activities



www.erm.li/eb

 **TULIP**

IoT Sick Pack

Malfunction box

Breaded parts

Change of production format

Electrical diagnostics / communication / sensors / pneumatics

IoT deployment for operation monitoring

Conveyor maintenance

...

#11: Cartesian palletizer

Palletizing cartons or trays on one pallet ½ Europe

- Schneider M340 PLC & Schneider Touch Panel
- XYZ 3-axis transfer system with brushless motors
- Gripper heads with pliers or suction pads
- Hydraulic lift table
- Rotary/linear cylinders and pneumatic suction pads
- Sensors (ILS, photoelectric, inductive, potentiometric, incremental encoders)
- Light barrier
- 3 technologies covered on a single system (electric, pneumatic, hydraulic)
- Automatic tool change (for interleaving)



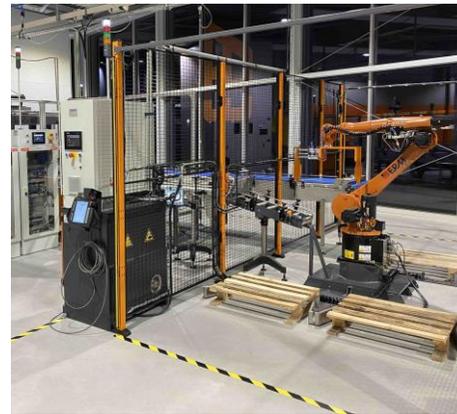
Malfunction box
IoT Sick Pack

www.erm.li/pm

#12: Robotic Palletizer

Carton and tray palletizing cell designed around a KUKA robot

- S7-1200 PLC & KTP700 touch panel (Siemens)
- 6-axis industrial robot (Kuka CyberTech, radius 1420 mm, load 10 kg) with Profinet communication card
- Gripper and suction cup heads
- IO-Link intelligent sensors
- Laser scanner



www.erm.li/up

- Learn about different operating modes
- Modify and generate trajectories
- Creating robot programs
- Operate and maintain a robotic cell (axis calibration, etc.)



Malfunction box
IoT Sick Pack

#13: Order picking station & manual palletizing

Preparation of customer orders:

- Ensure RFID control/traceability of cartons and/or pallets
- Place and organize cartons and operate pallet wrapping machine
- Collect shipping and traceability information
- Computer with printer for printing delivery notes
- Manual wrapping machine



www.erm.li/pm91

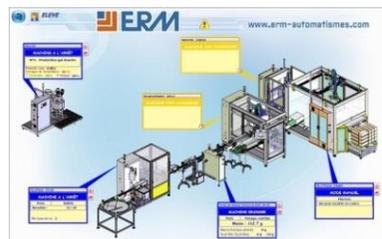
Integration with ERP/GPAO/MES environment

#15: Supervision PC Vue

Remote control of the Ermsmart line from animated synoptics

- Cadence logging and failure monitoring
- Recording of events occurring during production

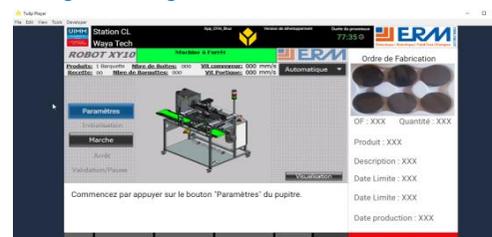
Easy-to-use PC Vue for in-house developments



www.erm.li/uc20

#16: Tulip - Visual instructions & Monitoring production indicators

Tulip is a web-based environment for creating applications on tablets and touch screens, designed to digitalize workstations.

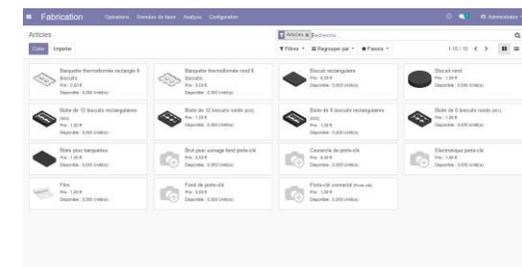


www.erm.li/tul



#17: Odoo - ERP, CAMM & CMMS Odoo

Odoo is an open-source ERP used by thousands of companies worldwide, from start-ups to large accounts.



www.erm.li/odoo

#14: Multitec

Stacking and destacking of pallets in 1/2 Europe format

- PLC & Touch Panel (Siemens or Schneider)
- Electric, pneumatic or hydraulic vertical axis
- Roller conveyors for moving
- Pneumatic cleats for gripping
- Sensors (ILS, linear position)
- 3 technologies covered on a single system (Electric, Pneumatic, Hydraulic)
- Use of animation kits not mounted on the Vertical Axis Module

www.erm.li/om



Vertical Axis Module

www.erm.li/os



Motorized roller transfer table module

www.erm.li/tm



Hydraulic lifting module

www.erm.li/ha



PLC & Touch Panel + Digital Twin in VU Pro



Programming in Schneider and Siemens environments, then simulation in the digital twin

Change of motorization technology

Electrical diagnostics / communication / sensors / pneumatics / hydraulics

Automation improvements (Add hour counter, Unstacking cycle)

IoT deployment for operation monitoring

...



Malfunction box

Breaded parts

IoT Sick Pack



Retrofit Multitec →

Retrofit Multitec → Renovate your old Multitec and start again for 20 years

- Replacement of the cabinet with the latest version with Schneider M340 or Siemens S7-1200 PLC and color touch panel
- Renovation of the operating part (new electrical harness, replacement of cylinders, sensors, lexans, casings, etc.).
- Technical and educational file in version 2021

BEFORE

AFTER



Nouveauté **CoBot & Vision UR station, Omron, Dobot or Franka**

Learning collaborative robotics, programming 6-axis Universal Robots, Franka Emika, Omron or Dobot Robotic robots (radii from 500mm to 1525mm, loads from 3kg to 16kg).

- Choice of collaborative electric clamp, clamp and pneumatic suction pad or suction pad and autonomous on-board vacuum generator
- 2D machine vision Sensopart (Option)
- Height-adjustable for stowage**
- 800mm wide chassis (fits all doors)
- Non-casing system with set of 2 safety scanners (Option)
- Proposed scenarios:
 - Set of parts for Clipping and Gluing (Trajectory only)
 - Set of parts for 2D vision and pick-and-place unscrewing



www.erm.li/scu

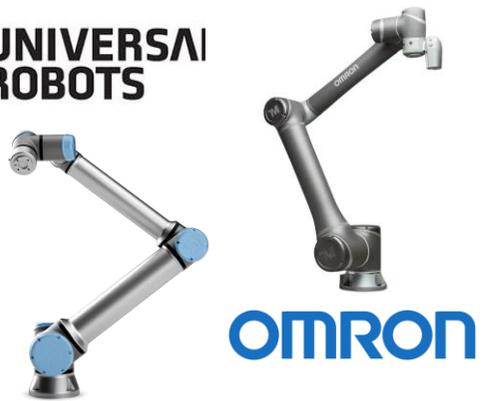
Graphic programming the robot



- Resuming a robot trajectory
- Clearing a robot in manual mode
- Vision settings
- Robotic cell safety & risk analysis
- Programming a new robot cycle
- ...



UNIVERSAL ROBOTS



OMRON



FRANKA EMIKA

Nouveauté **#0: AGV + CoBot "Mir100 + UR5 eSeries**

Learning about mobile collaborative robotics, programming the 6-axis UR5e robot (850mm radius, 5kg load) and mobile MIR100 (max load 100kg, max speed 1.5m/s).



- MIR100 mobile platform with 2 individually controlled wheels and two lithium-ion batteries for mobile operation
- Bluetooth and Wi-Fi wireless communication
- Low and high detection cameras
- Set of bins for transporting parts
- Clamp or suction pad and on-board autonomous vacuum generator (Option)
- Schunk tool changer (Option)
- 2D machine vision Sensopart (Option)
- RFID traceability system (Option)
- Automatic recharging station (Option)



www.erm.li/ag10

- Takeover of AGV mapping
- Battery replacement
- Resuming a robot trajectory
- ...

Nouveauté **#0: AGV Mir100**

Learning mobile robotics, programming the MIR100 mobile robot (max load 100kg, max speed 1.5m/s)



- MIR100 mobile platform with 2 individually controlled wheels and lithium-ion battery for mobile operation
- Bluetooth and Wi-Fi wireless communication
- Low and high detection cameras
- On-board shelving system for parts transport
- Operator tablet holder
- Control panel
- 2^{ème} battery for extended autonomy (Optional)



www.erm.li/ag00

- Takeover of AGV mapping
- Battery replacement
- ...

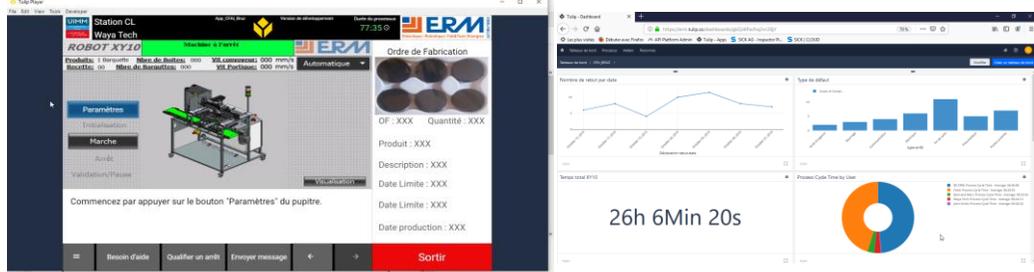
Nouveauté

Digital Tools 4.0: Digital Chain

Tulip - Visual instructions & Monitoring production indicators

Tulip is a web-based environment for creating applications on tablets and touch screens, designed to digitalize workstations.

- 0-paper visual intervention procedures on the Ermasmart line
- Machine supervision via OPC-UA to retrieve production data
- Declarations of production stoppages and defects
- Suggestions for continuous improvement from operators
- 0-paper control thanks to connected tools (Balance...)
- Dashboards for monitoring production indicators (OEE, output, etc.)



- Easy to modify existing applications and create new ones (100% graphical)
- Implementation of lean manufacturing concepts (Andon, 5S, etc.)

www.erm.li/tul

Creation and use of digital intervention procedures

Digital Tools 4.0: Automation 4.0 & Industrial IoT

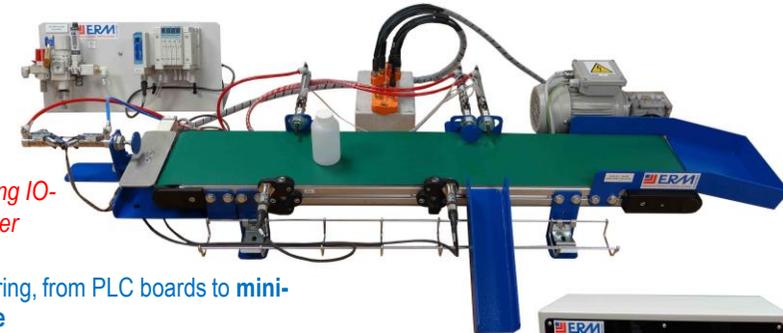
Automate 4.0 environment

Nouveauté

Evolving environment for the factory of the future



Communicating IO-Link master



Breaded parts

- Modular, scalable offering, from PLC boards to mini-factories of the future
- Secure PLC cabinet with protection for professional wiring on terminal blocks
- Industrial solutions integrating modern technologies:
 - RFID IO-Link for traceability
 - Pneumatic assembly with IO-Link components
 - Weighing (strain gauge)
 - Vision (camera)

www.erm.li/ea



PLC programming

Vision settings

IO-Link intelligent sensor parameterization

Drive parameterization

Electrical diagnostics / communication / IO-Link sensors / pneumatics

...

Capilog CMMS

In its Education version, Capilog can be used as a real CMMS solution in your workshop. It will enable you to develop educational activities with your students at Bac Pro, BTS, IUT... to introduce them to the use of a CMMS.

www.erm.li/cap



ERM provides Machine bases on many of the systems in its range, to make it easier to get started using Capilog :

- Response management and planning
- Management of preventive maintenance, operating procedures and preventive maintenance by type
- Equipment management
- Supplier management
- User management
- Administration and Setup
- CapiLog Mobile

Maintenance operations linked to a CMMS

Creating a maintenance plan for a CMMS system

Nouveauté

Smart IoT Gateway Kits Sick TDCE & Smart Sensors

Design and implementation of an IOT-based alert system

- IOT gateway and several IO-Link intelligent sensors
- Indoor (with additional antennas) and outdoor locations
- Setting up intelligent sensors
- Transformation and contextualization of sensor data via NODERED
- Setting up local monitoring screens via NODERED
- Setting up CLOUD monitoring screens (Option)
- Generates visual, e-mail and SMS alerts
- Communication: Wi-Fi, Ethernet (multi-protocol), serial links
- Scalable solution ideal for project business



IO-Link www.erm.li/sk10

Electrical (Modbus-TCP) and pneumatic (IO-Link) sensor packages



IoT deployment for operation monitoring on all types of machines

IO-Link intelligent sensor parameterization Creating supervision and alarm pages

Smart IoT Gateway Sick TDCE & Smart Sensors Case

Design and implementation of IOT-based maintenance alerts

- Installing sensors in a case
- Use of intelligent sensors (with on-board tasks) and IO-Link
- 6 sensors and a conveyor for 5 curative, preventive or predictive maintenance themes
- Use of the NODERED tool to link data and create sms, e-mail alerts etc...
- Local or remote Dashboard creation using a CLOUD



www.erm.li/sk00

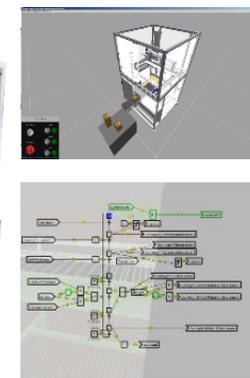
IO-Link intelligent sensor parameterization Creating supervision and alarm pages

Digital Tools 4.0: Digital Twins

Virtual Universe Pro - Simulation on 3D digital twins

Modeling and simulation (on PC or immersive headset) of virtual systems in a 3D environment integrating physical simulation

- Integration of 3D system models created from an object library or CAD software (SolidWorks...)
- Interconnection with actual electrical and pneumatic diagrams and PLC programs
- Real-time 3D model simulation by:
 - A PLC connected to the computer
 - Computer software on another computer with an IP connection
 - A software-integrated virtual controller
- Control and virtual discovery of systems
- Digital twins of 5 Ermaflex production line systems available



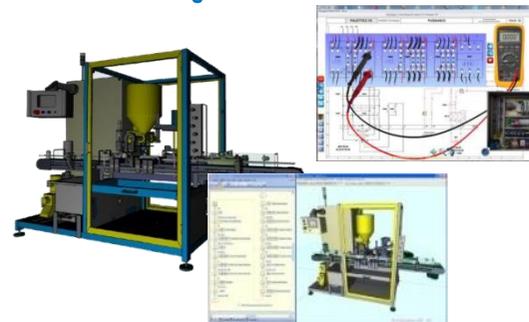
www.erm.li/vup

- Ideal for learning PLC programming (real or virtual)
- Multiplication of workstations without risk of material damage
- Site license (unlimited number of workstations)
- Virtual production control & maintenance activities

Programmable 3D digital models Ermaflex

Digital twins of 6 Ermaflex production line systems

- PLC programming (Grafcet and GEMMA design via integrated editor)
- System control with its Man/Machine Interface
- Maintenance diagnostics



Polyprod digital mock-up



Multitec digital mock-up

www.erm.li/mnp

Nouveauté



Diota ExcellAte - Augmented reality for Industry 4.0

Diota enables geometric data (3D models) and procedural data (instruction sheets, etc.) from industrial systems to be rendered to operators in real time, in order to improve complex human operations: Assembly, Operation & Maintenance, Quality & Conformity Control.

- Augmented reality on tablet, projective system and HoloLens
- Markerless technology for superimposing virtual elements (3D models, tools, etc.) on the real thing
- Field data collection (photos, operation reports, etc.)
- Can be interfaced with MES and supervision software...
- Integration with SolidWorks/Catia Composer to graphically create augmented reality scenarios from the 3D system model



Pedagogical approaches:

- Operator/technician level:** Augmented reality-guided interventions and implementations (scenarios available on various ERM training systems)
- Technician/engineer level:** Creation of augmented reality projects and scenarios on Solidworks/Catia Composer and Diota to assist operators and technicians.



DIOTA
AUGMENTING INDUSTRIES

www.erm.li/dio

Job Card (maintenance scenario)



Design in Catia/SolidWorks Composer

Creation and use of Augmented Reality intervention procedures

Learning Solidworks Composer, a 3D tool for Methods departments

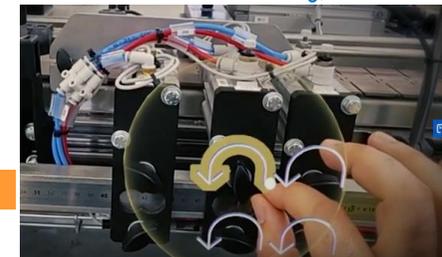
HoloLens 2 is a mixed reality headset from Microsoft. Combined with Microsoft Guides software, it can be used to support production and maintenance operations:

- Development in Microsoft Guides of support procedures/ranges on a machine
- Step-by-step monitoring of procedures/routines using the HoloLens headset and mixed reality (real-time superimposition of text, video, documents, images, 3D objects, etc.).

Combined with Teams, HoloLens 2 can also be used to set up remote assistance via streaming, with augmented reality tools.



<https://erm.li/hol>



HoloLens 2



DYNAMICS 365
Guides



DYNAMICS 365

Remote Assist

Creation and use of Augmented Reality intervention procedures

Development of communication skills and technical explanations

Epson Moverio + Brochesia - Augmented reality for remote assistance

- Hands-free visual assistance in augmented reality with a remote streaming expert
- Features: Audio / Video streaming for two or more users, Photo capture, Video recording, Remote pointer, Image annotation and screenshots, Real-time annotation, Document transfer from Expert PC, Screen sharing, Chat...
- On-site technician can view video, photos and instructions in AR in his Epson glasses

Remote expert



www.erm.li/epm

On-site maintenance technician



EPSON



Development of communication skills and technical explanations

Virtual Indus "Production Control"

Learning procedures for piloting automated industrial production systems

- **SPC1 Statistical Production Control module**
 - Sequence 1a - **sampling procedure, graphic representation and interpretation of results**
 - Sequence 1b - **Statistical control with control chart and production validation**
 - Sequence 1c - **Statistical control, identification of deviations and/or malfunctions and reactions**
- **SPC2 Statistical Production Control module**
 - Sequence 2a - **Dosing machine qualification**
 - Sequence 2b - **control by control board**



www.erm.li/vip

In partnership with



- Recommended immersion headsets: HTC Vive or HP Reverb
- Design of 3D scenes in close liaison with reference systems and teams of experts in trades/technology training
- Easy to move for multi-site use
- 3 learning levels (beginner, advanced and expert)
- Possibility of replaying the scene to understand and learn its behavior
- The "right to make mistakes" is possible without risk to the learner or the equipment.

www.erm.li/vie

Learning safety procedures for electrical work

- **Habilitation B1V:** Carry out an electrical operation in a low-voltage zone (zone 4) with the installation and removal of an insulating blanket.
- **BS electrical accreditation (2 sequences BAT & INDUS):** Perform basic low-voltage work on a de-energized installation element outside zone 4.
- **BR electrical accreditation:** Replace a defective component after consignment on own account and put back into service the installation requiring an adjustment task.
- **B2/BC electrical authorization:** Carry out one-step consignment, supervise work entrusted to subcontractors, carry out de-energized electrical operations in simple neighborhoods (zone 1) and deconsign at the end of the work.



Sphere - Graphics environment for creating VR content

Sphere makes Virtual Reality accessible to all, with a simple, intuitive user interface that requires no programming skills.

STEP 1: Import your 360° resources

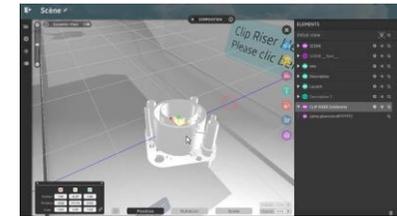
- The environment in which your user will be operating
- Import 360° photos/videos or 3D scenes (Solidworks...)

STEP 2: Bring your content to life

- Enrich your VR project with photos, videos, sounds, 3D objects...
- Define navigation and display conditions using the software's built-in animations editor

STEP 3: Test and publish

- Position your objects in the visual editor
- Test your WebVR resource in your VR headset or on screen
- Publish and distribute via web browser

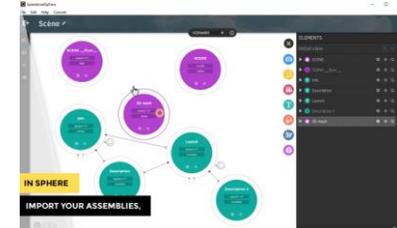


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- **In-house production of training content, virtual tours...**
- **SCORM file generation**

Virtual Sphere scenarios available:

- Electrical fault diagnosis on AGVs
- Discovering safety on a production line



Virtual Indus " Maintenance & Diagnostics

Learn industrial maintenance and troubleshooting procedures

Electrical diagnostics & maintenance module:

- **3 types of random failures** on the Polyprod industrial dosing and capping system
- Activity sequence:
 - Troubleshooting on immersed systems
 - Troubleshooting on technical files (electrical diagrams, etc.)
 - Immersion component replacement
 - System reboot and test

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