Company Profile

ASEM

DIGITAL AUTOMATION TECHNOLOGIES

Over 40 years of innovation made in Italy

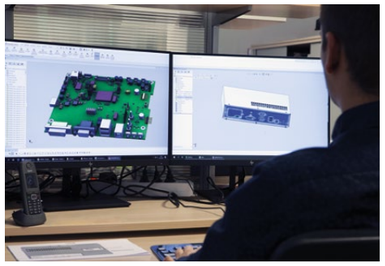
Since **1979**, **ASEM** has successfully designed and manufactured systems and solutions based on microprocessor technology and is successfully pioneering the integration of the **ICT technologies** in the **Industrial Automation** world.

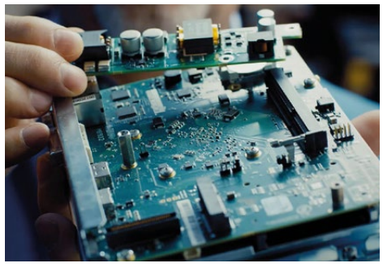
Around 30% of the human capital dedicated to R&D

ASEM covers all the requirements in terms of **hardware** and **software design** by leveraging a team of **highly experienced** and **skilled engineers**. Every product is created working together with the **technological partners** and constantly striving to fulfill the customer's needs. This commitment results in solutions that are **highly performing**, **user friendly**, **reliable** and **capable** of withstanding with the **most demanding industrial environments** all over the world.

Leader and trendsetter in the Open Automation

The constant focus on **customer requirements**, **innovation** and **quality**, together with the continuous investments in **human capital**, **technology** and **production processes** make **ASEM** one of the emerging players in the European Industrial Automation market. ASEM provide solutions that are **fully designed**, **industrialized** and **manufactured in-house** guaranteeing the full control of the whole value chain.





1979

A start in the Industrial Automation

Founded in **1979** by the current President & CEO **Renzo Guerra**, **ASEM** (**A**utomazione **S**istemi **E**lettronici **M**icrocomputer) started as an engineering company specialized in the **design** of **automation solutions** based on **microprocessor technology**.

1983

Focusing on Information Technology

ASEM entered the **Information Technology** market, **designing** and **manufacturing MS-DOS compatible PCs**, reaching a **6%** Italian **market share** in the late 80s.

1992

Leader in the Industrial PCs market

ASEM started **designing** and **manufacturing Industrial PCs** for the **Industrial Automation market**, reaching at the beginning of the 2000s the **leadership** of the **Italian IPCs market**.

2006

Extending the offer to Automation Systems

ASEM started **extending** the **products portfolio** beyond Industrial PCs, becoming an **automation systems provider**. Leveraging its **strategic partnership** with major software solutions providers, **ASEM** begun to offer **software platforms** such as **Premium HMI** and **CODESYS**. The **software & system technical support** unit was established in **Giussano** (MB) in **2007**.

2011

The Software Revolution

UBIQUITY was the first **software platform** fully **developed in-house**, the new solution dedicated to remote assistance providing **access** to automation systems and devices. **Premium HMI** 5 was released and it introduced several new features such as **multi-touch** and **multi-core processors** support. The **software R&D** unit was established in **Verona** in **2012** and, in the same year, a **sales office** was settled in **Germany** with the aim of directly following the **local OEMs**.

2019

UNIQLOUD on the Horizon

UNIQO, the revolutionary **own solution for HMI applications**, was launched on the market bringing to reality **responsivity**, **modularity**, **interoperability**, **flexibility** and **expandability**. **ASEM** introduced **UNIQLOUD**, a **cloud-based platform** that enables a wide range of **integrated services**.

QUALITY

- ISO 9001 Certified
- Direct ownership and control of the whole manufacturing process
- Compliance with application specific standards

INNOVATION

- All products are based on Open & Standard technologies
- Strategic partnership with technological trendsetters
- In-house know-how related to all the technologies used in our products
- More than 30% of our Human Capital dedicated to R&D

FLEXIBILITY

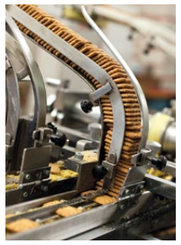
- Flexible manufacturing process
- All solutions are fully configurable
- Taylor-made solutions to fulfill customers' needs

CONTINUITY

- Present in the market since more than 40 years
- Long products life-cycle (10 years)
- Continuous investments in R&D

ASEM operates in the **Industrial Automation market**






ASEM designs and **manufactures** a wide range of **Industrial PCs** and **Operator Panels** integrated with software for **Remote Assistance** (**UBIQUITY**), **Visualization** (**UNIQO HMI** and **Premium HMI**) and **Control** (**CODESYS**) to provide **complete**, **flexible** and **reliable solutions** for the **Industrial Automation**.

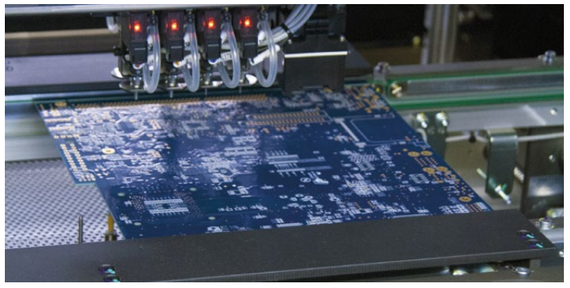
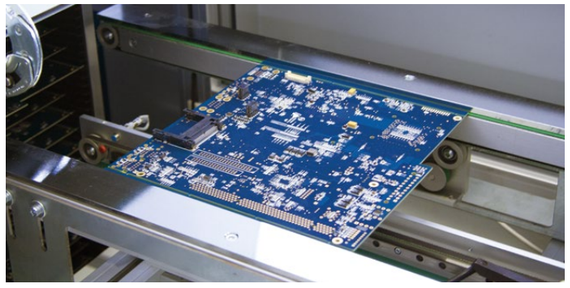
From **concept** to **finished product**

Systems & boards design

- Electronic Design
- Mechanical Design
- Thermal Design
- Products Industrialization

Board manufacturing

- 2 complete SMT lines
- Boards AOI (Automatic Optical Inspection)
- X-Ray inspection
- Functional tests
  - → Boards supply voltage test (bed of nails) & functional test
  - → Burn-in test

Open & Standard

ASEM has an **Open and Standard** philosophy inherited from the **ICT sector** and the strong belief that the same concept is transforming the **Factory Automation** world as well.
At the same time, **ASEM** ensures the **full compatibility** with the main proprietary standards and **communication protocols** available in the Industrial Automation market.

HW & SW integration

ASEM develops in-house both **hardware** and **software** platforms and this results in a **perfect integration** of the software solutions into any **IPC**, **HMI** or **PAC** equipped with the **latest technologies**.

Customization

ASEM offers a **customization service** to meet the most specific **customer requirements**, whether they are **hardware**, **firmware** or **software**.

Reliability

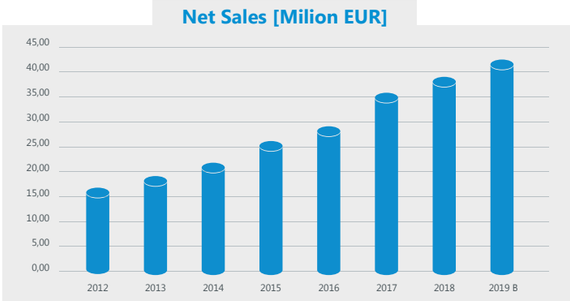
ASEM directly **controls** all **processes**, from the **product electronic & mechanical design**, to the **manufacturing of the motherboards** to the **final system assembling**. This approach enables **ASEM** to **continuously improve the industrialization** of all solutions, achieving the **best reliability** and **mechanical robustness** thanks to an **optimized arrangement of components** and **cabling**.

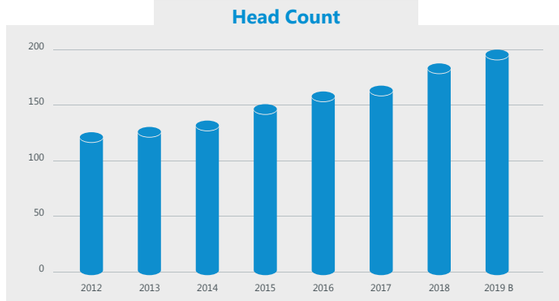
Continuity

ASEM products and solutions guarantee a **minimum lifecycle** of **7 to 10 years**, with additional **5 years** for **support** and **repairs**.

ASEM facts & figures

- **Headquarters** in **Artegna** (Italy)
- **10.000 m² production area** in Artegna (Italy)
- **R&D** and **technical support** offices in **Verona** and **Giussano** (Italy)
- **Sales offices** in **Italy**, **Germany** and **Switzerland**
- **Global presence** via partners and distributors
- Net sales **average growth** of **18%** from **2012** to **2018**





High performance in a compact and fanless design...

The Industrial-PCs of the BM series offer powerful hardware in a unique, compact design. The use of open and standardized technologies forms the basis for reliable, modern hardware that can be used individually and meets all challenges.

Scalable

- Latest processor technology from Intel
- Available in various performance classes
- Customizable according to your application with various
- Add-on options (i.e. RS232, 422, 485, Fieldbus...)

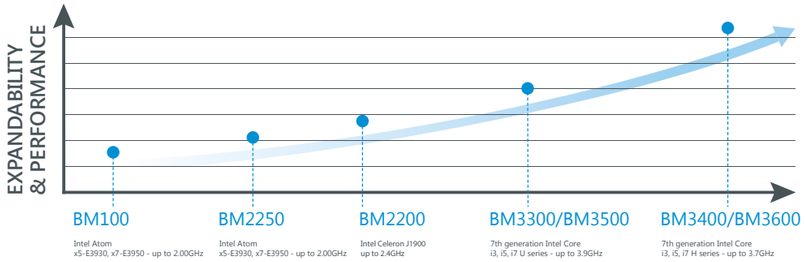
- Perfectly matched hard- and software:
  - → Premium HMI or UNIQO HMI for visualization
  - → UBIQUITY for secure remote solution
  - → CODESYS SoftPLC and SoftMotion for control applications

Highlights

- **On top interfaces:**
  - → Ergonomic cabling
  - → Reduced installation space
  - → Protection against accidentally cable disconnection
- **Front access:**
  - → Better visibility of signals/warnings
  - → Better access to removable devices like CFast and battery
- **Mechanics:**
  - → Full aluminum
  - → Compact and robust
  - → Elegant industrial design
  - → Front interfaces protection door
- **Thermic dissipation:**
  - → Fanless operation and 0°÷50°C operating temperature even with Core i7 processor

Options

- Wi-Fi
- 3G/4G (LTE) Modem
- Add-on Serial, USB, Ethernet interfaces
- Extractable SSD/HDD
- PCI/PCIe/Mini PCIe slots
- UPS with external battery pack
- Integrated Remote Video Link output



Supported Fieldbus Systems

EtherCAT, Modbus, CANopen, EtherNet/IP, PROFIBUS, UNIQO

The Industrial PCs are available also as Box IPC (PB Series) or Rack IPC (PR Series)

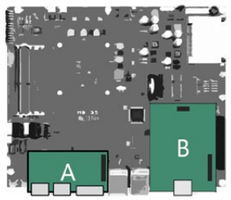
PB2200 - Box IPC

PR40xx - Rack IPC

Experience the brightness...**Panel-PC series**

The Panel-PCs of the new QT series are state-of-the-art hardware paired with brilliant display technology. The panel PCs are the perfect symbiosis of high-performance PC technology, which can be flexibly adapted to the customer's application requirements and high-quality LED TFT displays in sizes from 7 to 24 inches. The new and sleeker front design saves space and provides an improved User Experience. The QT series devices are low consumption and high computing performance systems, based on Atom, Celeron and Core™ i3, i5, i7 dual and quad core processors.

High degree of flexibility with two slots for add-on interfaces

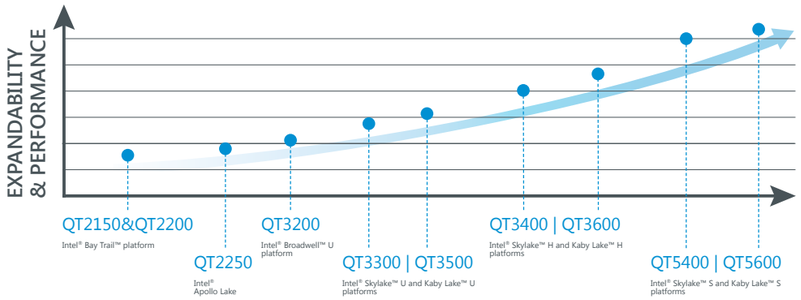


Highlights

- Minimized frame
- 7"-24" Display
- 4:3 / 16:10 / 16:9 ratio
- Fanless
- IP66 front panel
- ATEX zone 2/22
- Remote assistance included

Options

- Wi-Fi
- 3G/ 4G (LTE) Modem
- Add-on Serial, USB, Ethernet interfaces
- PCI/PCIe/Mini PCIe slots
- UPS with external battery pack (for rear or detached mounting)



Supported Fieldbus Systems

EtherCAT, Modbus, CANopen, EtherNet/IP, PROFIBUS, UNIQO

Ideally suited for use in IIoT/Industry 4.0 environment. Regardless of the hardware platform, the extensive functions of Premium HMI or UNIQO HMI visualization software can be used on all Panel PCs and HMIs.

UBIQUITY UNIQO HMI PREMIUM HMI

The robust **Arm Mounting IPCs and Monitors** are particularly well suited for use in ergonomic workstations in harsh environments

The **Arm Mounting IPCs and Monitors** are compact, fanless and ergonomically designed systems:

- Easy to install
- Compatible with common mounting arm systems
- Available in display sizes from 15.6" to 24" in widescreen format
- Made of a full IP65 cast aluminium chassis, powder coated with anti-scratch treatment
- High resolution LED TFT display with 16 million colors, up to Full HD
- Resistive (single touch) and capacitive (multitouch) touchscreens

The VK series

Based on powerful Celeron and Core™ i3, i5 and i7 processors of the fifth generation Intel® U platform, the performance of the system can be individually configured to fit the requirements of every application:

- By selecting the processor, RAM and mass storage size
- By adding optional interfaces
- By customizing the button area

Comprehensive range of accessories

The complete package is rounded off by many accessories and a freely configurable button area in an IP65 housing.

Customizable

The button area of the VK3200 and MK100/MKR100 Arm Mounting systems is totally configurable at the order, depending on customer's requirements, and allows front access for further modifications and substitutions.

The industrial **monitors** of the **MH and MHR series** offer the ideal complement to the industrial PCs

High Quality Manufacturing

Manufactured by special clean room processes, the high-quality front frames with true-flat touch screens, enable the use of the panels in every environment.

- Available with aluminium, TrueFlat aluminium and TrueFlat stainless steel front panel with 5 wires resistive touch screen and with TrueFlat aluminium front panel with P-CAP multitouch screen
- IP69K version specifically developed for the pharmaceutical and food & beverage industries

RVL and MHR system

- Remote Video Link (RVL) system for long distances between IPC and monitor
- Distances up to 100m
- Available as system solutions integrated into IPCs or monitors
- Available also as stand alone solution for 3rd party manufacturers

Browser panels for **web-based** applications

RT45	RT50	RT100
Linux	Linux	Linux
ARM Cortex A9 1GHz	ARM Cortex A9 1GHz	Intel Atom x5-E3930 - x7
i.MX6 DualLite	i.MX6 DualLite or QuadPlus	E3950 up to 2.0 GHz

The RT Series – reduced to its best

High-resolution displays with 16 million colours in a sleek front design make these devices very appealing.

- High-resolution displays with 16 million colors
- IP66 protection class
- Display sizes from 4.3" to 21.5"
- Classic or widescreen format
- Available with aluminium and TrueFlat aluminium front panel with 5 wires resistive touch screen and with TrueFlat aluminium front panel with P-CAP multitouch screen

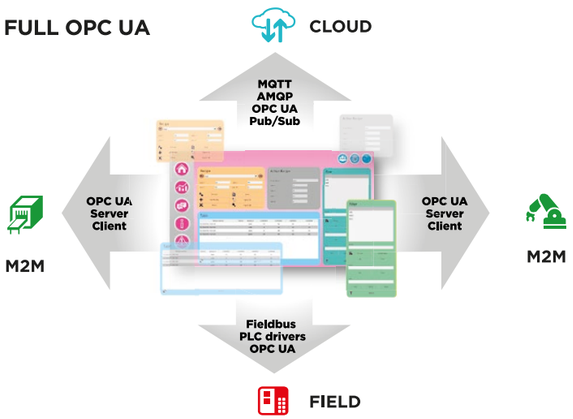
All the embedded systems feature an image with an ASEM designed Linux operating system that includes ASEM System Manager (ASM) that provides the following features:

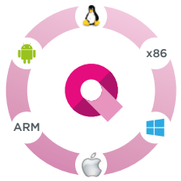
- ASEM Smart Update that allows the OS update either locally or from remote
- Backup & Restore functions to effectively and securely manage the OS backup and to quickly restore a back-up
- Diagnostic tools to investigate connectivity issues or access the system log

UNIQO HMI

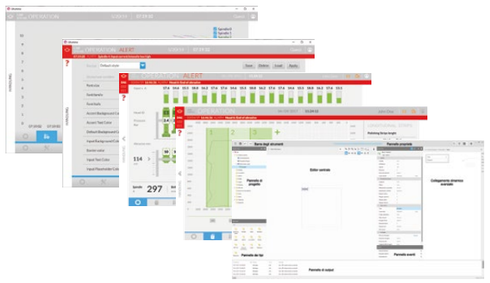
Cross-platform software solution for industrial automation applications

Based on the **concept of object-oriented programming**, ASEM developed a completely new software that offers **more flexibility than ever**, completely new dynamic approaches through **cross-platform technology** and a **fully modular design**.





- **Modular** and **cross-platform** software
- Completely **based on OPC UA**
- Integration of **OPC UA server and client** enables gateway functionality between classic PLC communication drivers and OPC UA
- **Dynamic changes** to the project **at runtime** using "live-mode" without cumbersome machine stop and time-consuming new project planning
- Integration of **state-of-the-art methods**, **technologies** and **object-oriented programming**
- Communication with any automation device
- Simple adaptation of the interface by means of stylesheets
- **Significant reduction of development** effort through modularity and reusability



Designed for the future, UNIQO HMI is completely based on OPC UA and is the ideal tool for industry 4.0 and IIoT applications. All functions and properties of an HMI are modeled as objects and mapped in the OPC UA information model, ensuring the **highest degree of interoperability**.

The integration of **OPC UA Server and Client** allows **gateway functionality** between classic communication protocols and OPC UA. Ready to be used in scenarios where data exchange with higher level systems, incl. MES, ERP or any other supervisor system is needed.

Changes can be made to the project **at runtime** in "Live Mode" **without cost-intensive machine stops** and time-consuming new project engineering. This enables **adjustments during commissioning**, live **error** corrections during operation or changes to the user interface.

Visualization can be designed once to dynamically match at runtime the specific machine configuration. The **user interfaces can be automatically built during the commissioning phase by** learning the machine model, keeping the flexibility for future changes.

UBIQUITY

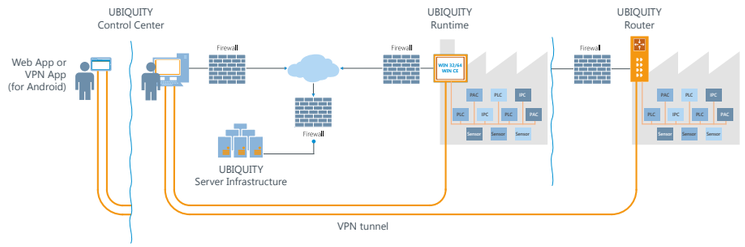
The innovative solution for **secure remote maintenance** and **control**

Designed for machine builders, the remote assistance and control solution UBIQUITY allows to operate on the remote system and its sub-networks as if it was in your own office.

UBIQUITY does not require additional hardware and allows to operate in remote plants as if they were directly connected to your enterprise network. It enables technical support teams to solve any issue, eliminating the need for on-site assistance, dramatically reducing post-sale service costs.

This solution is particularly useful during machine setup and commissioning, to monitor remote applications, to modify and update software applications and remotely debug PLCs and other automation devices.

UBIQUITY is a software, **independent of specific hardware** and **different O.S.**. The runtime can be used on different hardware platforms (x86 and ARM-based systems) such as IPCs, HMIs or routers equipped with Windows, WinCE and Linux.



- Industrial VPN
- Intuitive solution
- No IT knowledge required
- Remote maintenance and control
- Certified according to IEC62443-3
- Developed with machine manufacturers
- Support for commissioning and troubleshooting
- Compatible with any industrial communication protocol
- No restrictions on number of users, devices, connections

UBIQUITY Routers:

UBIQUITY routers complete the range of remote maintenance products. The router as a ready-to-use solution enables remote access and monitoring of any automation device.

UBIQUITY routers provide remote maintenance and control on systems and machines without a wired internet connection using UBIQUITY routers with integrated 2G/3G/4G LTE modem, or Wi-Fi options.

UBIQUITY RM Series Routers combine the advantages of data acquisition and monitoring with those of remote maintenance and control. The RM series can access PLCs or other automation devices directly. Functions such as data recording, archiving, alarm and message monitoring with forwarding and notification are easily possible.

UNIQO HMI

The first **HMIs** with remote access and capabilities

HMI45
Linux
ARM Cortex A9
1GHz i.MX6 DualLite

HMI50
Linux
ARM Cortex A9 1GHz i.MX6
DualLite or QuadPlus

HMI100
Linux
Intel Atom x5-E3930 - x7
E3950 up to 2.0 GHz

Versatile

The operator interfaces based on a Linux operating system are equipped with UNIQO HMI and ideally suited for applications in an industrial 4.0 environment

- High-resolution displays with 16 million colors
- IP66 protection class
- Display sizes from 4.3" to 21.5"
- Classic or widescreen format
- Available with aluminium and TrueFlat aluminium front panel with 5 wires resistive touch screen and with TrueFlat aluminium front panel with P-CAP multitouch screen
- ARM Cortex A9 or Intel Atom E39x processors
- UNIQO HMI
- UBIQUITY PRO

CODESYS

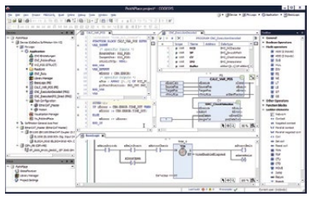
CODESYS is the leading manufacturer-independent IEC 61131-3 automation software for **engineering control systems**

Flexible PLC and Motion logic control in a single development

- Perfect integration of auxiliary components for automation engineering:
  - → SoftPLC
  - → SoftMotion
  - → CNC
- CODESYS SoftMotion covers all motion functions, from motion management of single axis to 3D CNC interpolations
- The possibilities offered by the standard IEC 61131-3 give no limits to the complexity of the tasks to be assigned

Porting projects between different platforms

A project can be ported between different platforms and operating systems without the need of major changes in the application or in the settings of the development tool.



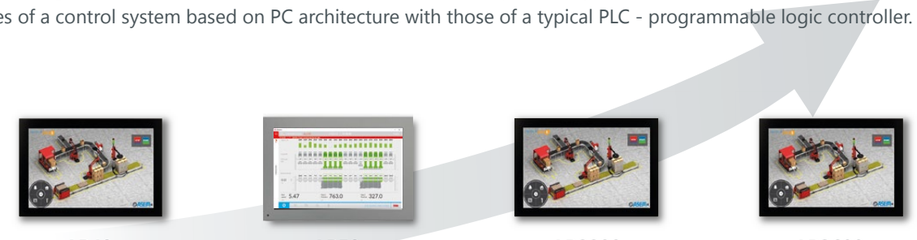
5 different programming languages in one flexible development tool

- **Text editor:**
  - → IL (Instructions List) Low-Level-Language for fast operations
  - → ST (Structured Text) High-Level-Language for structured programming
- **Graphic editors:**
  - → LD (Ladder) allows the programmer to virtually combine relay contacts and coils
  - → FBD (Function Block Diagram) allows the user to quickly program both Boolean and analogue expressions
  - → FC (Sequential Function Chart) suitable to program sequential processes

LP Series - Programmable Automation Controller.

The new frontier of control systems

The term PAC - Programmable Automation Controller - indicates compact or hybrid modular controllers that combine the features and capabilities of a control system based on PC architecture with those of a typical PLC - programmable logic controller.



LP40
WinCE
ARM Cortex A9
1GHz DualLite

LP50
Linux
ARM Cortex A9 1GHz i.MX6
DualLite or QuadPlus

LP2200
Windows 10 IoT
Enterprise Intel Celeron
J1900 2.00GHz

LP3600
Windows 10 IoT
Enterprise Intel Core
i3/i5/i7

The actual portfolio includes a wide range of performance, starting with the LP40 based on ARM Cortex A9 CPU up to the LP3600 based on Intel Core-i CPU.

ASEM PACs have an integrated MicroUPS with supercapacitors or a UPS with integrated electronics and external battery, both with 512kB MRAM (Magnetoresistive RAM) for retentive data management. In addition to the SoftPLC, they provide simultaneous execution of Premium HMI or UNIQO HMI visualization and UBIQUITY remote assistance softwares, representing the new frontier of "Ready to Automation" systems.

UBIQUITY
UNIQO HMI
PREMIUM HMI
CODESYS

CP50 – The Panel PAC that integrates Control, Remote I/O, HMI and Remote Assistance

The Panel PAC CP50 is the new all-in-one solution that integrates control, I/Os, HMI and remote assistance specifically thought for small sized machinery.

- High-resolution displays with 16 million colors
- Display sizes from 7" to 18.5" widescreen
- Available with aluminium with 5 wires resistive touch screen and with TrueFlat aluminium front panel with P-CAP multitouch screen
- ARM i.MX6 DualLite/QuadPlus
- Integrated remote I/O with EtherCAT or Modbus TCP interface
- Includes UNIQO HMI, UBIQUITY and CODESYS
- Complete modularity and configurability of the integrated I/Os
- Wide range of I/O modules

UBIQUITY
Control Center

HMI
Operators panel
to run the machine

High performace
Book Mounting IPC
(in cabinet)

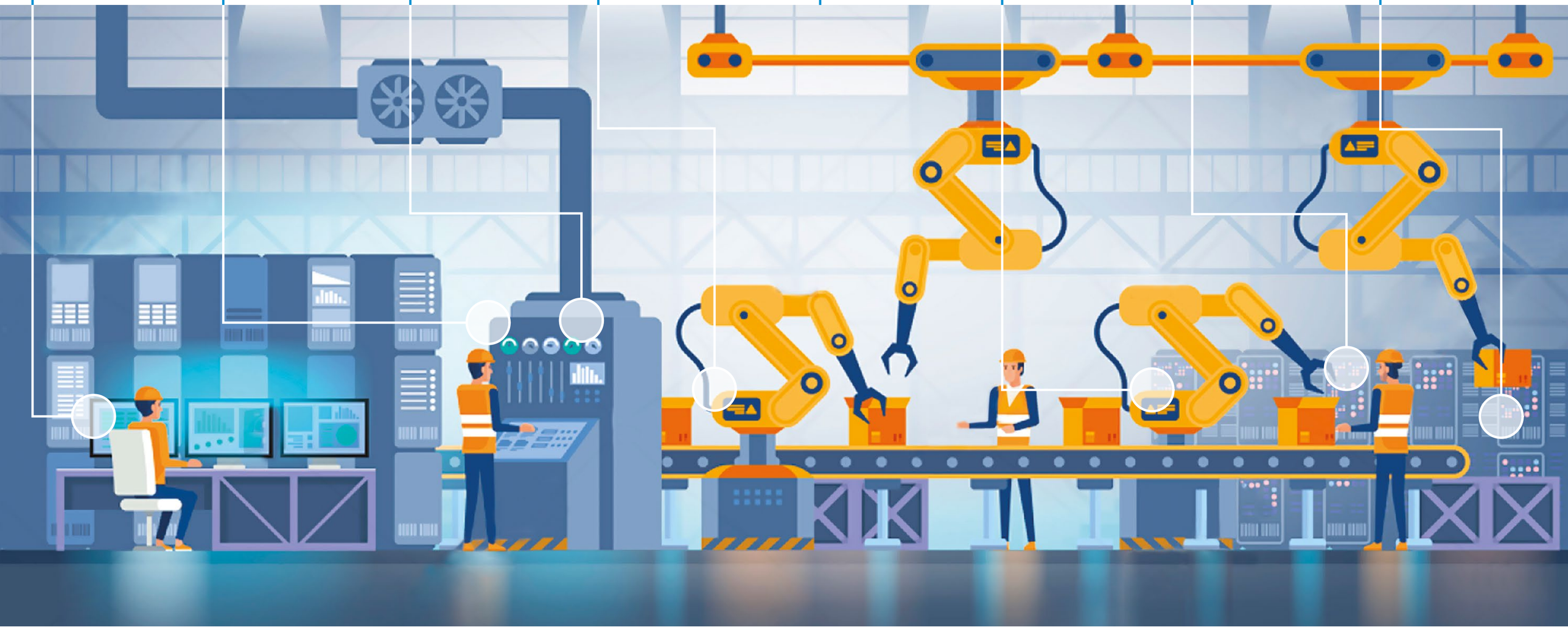
CODESYS
SoftPLC logics

Standard Fieldbus
EtherCAT,
MODBUS TCP

ARIO 500
Remote I/O
on machine

ARM Mounting
IPC

High perfomance
Panel PAC



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