Solutions for the Open**Automation**

INDUSTRY 4.0

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ASEM CORPORATE

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ASEM designs and manufactures a wide range of Industrial PCs, HMI and PAC (Programmable Automation Controller) solutions based on x86 and ARM Cortex hardware platforms for the industrial automation market.

37 years of innovation **Made in Italy**

Since 1979, ASEM is a pioneer in the digital technology integrations between Information & Communication Technology and Industrial Automation.

The performance, configurability, robustness, design and the high number of software features of ASEM products and systems, are the result of 37 years of experience in designing and producing solutions for the most demanding industrial applications.
Exploring from the very beginning the potential of Open & Standard technologies into Factory Automation, and leveraging the first-class know-how in developing hardware, firmware and software, ASEM has strengthen its leading position in Italy in the Industrial PCs, HMIs, remote assistance and control systems market.

UBIQUITY

PREMIUM HMI 5

1979 - 1982
Specializing in Electronic Engineering

- Founded in 1979 by Renzo Guerra, current President and CEO, ASEM (**A**utomazione **S**istemi **E**lettronici **M**icrocomputer) started as an engineering company designing and producing microprocessor-based industrial automation systems.

1983 - 1992
Player of the IT world

- ASEM enters the IT market by designing and manufacturing interfaces and accessories for Personal Computers.
- As the only Italian company besides Olivetti®, ASEM manufactures MS-DOS compatible PCs, gaining in the latest 80's the 6% of the Italian PC market, more than global companies like Apple® and Compaq®.

1993 - 2005
Leading the Industrial PC market

- In the mid-90's, ASEM is the first company in Italy focused on the design and production of Industrial PCs, addressing the industrial automation market.

2006 - 2010
Producing automation systems on an international scale

- In 2006, ASEM begins a specialization path to approach the market not only as a manufacturer of Industrial PCs, but as a company providing automation systems with software.
- Thanks to agreements with partners ASEM offers Premium HMI and CODESYS (softPLC) software platforms.
- ASEM opens an office in Giussano (MB) dedicated to software and system support.
- ASEM opens a sales office in Germany to follow directly German OEM customers.

2011 - ...
The software and remote assistance era

- ASEM releases Premium HMI 3, the first visualization software with new features developed in-house.
- The company introduces the remote assistance platform UBIQUITY to remotely access automation devices via VPN.
- ASEM opens a second manufacturing facility dedicated to assembly and test of electronic boards and systems.
- ASEM opens a local software R&D office in Verona.
- ASEM starts designing and producing ARM-based HMIs, remote assistance and PAC systems.
- ASEM releases the new Premium HMI 5 visualization software version, inlcuding multitouch programming, support for multi-core processors and OPC UA protocol leading the way to the distributed connectivity of the "Industry 4.0" and Industrial "IoT".

ASEM and the "**Open Automation**"

Over 25 years of experience in design and production of IPCs and 10 years of specialization in PC-based systems for machine and process automation.

Leading the "Open Automation" in Italy, ASEM is a reliable and professional partner able to guide customers through the evolution of HMI, control and remote assistance technology for the Industrial Automation market, developing and producing "Open & Standard" hardware platforms integrated with innovative, flexible and easy-to-use software.
ASEM has its own complete hardware, firmware, software, mechanics and system design capability and manages internally all production phases, including board assembly and welding.

ASEM: entrepreneurship, investments, innovation
Thanks to a constant focus on innovation and quality, combined with investments in human resources, technology and manufacturing assets, ASEM is now one of the European emerging companies in the industrial automation market, providing systems and solutions that are entirely designed, engineered and produced in-house.
The company has been committed to anticipate customers' needs, convinced that machine builders should leave proprietary technologies, to embrace "Open & Standard" platforms, focusing on software application development.

The deep knowledge of "x86" (PC) and "ARM" technologies and the investments in software design are in tune with the evolution of the industrial automation market needs.
Market globalization and the economic crisis have forced machine builders to reduce costs and recover efficiency.
At the same time end users (factories) modified their demand requiring price and delivery time reduction while increasing customization requests.
Machine builders are then pushed to reduce development time and take an innovative approach using "Open & Standard" hardware platforms integrated with flexible and easy-to-use software development tools.

The integration of Information & Communication Technologies is now a need to produce automatic machines interconnected into a wider and more complex network where to exchange data and information.
ASEM technological excellence is guaranteed by significant investments in R&D and continuous training of the entire workforce.
The ability to understand and anticipate the fast market evolution, set and follow the right strategies, has enabled the company to maintain a steady growth momentum in the last 10 years.

ASEM in numbers:

- → 2016 Revenues: 34,8 million Euros
- → 175 employees
- → 5.200 sqm Headquarters in Artegna (UD)
- → 3.250 sqm manufacturing facility in Artegna (UD)
- → R&D offices in Verona
- → R&D offices in Giussano (MB)
- → Sales offices in Germany

R&D

The seamless integration of hardware and software technologies is key to success

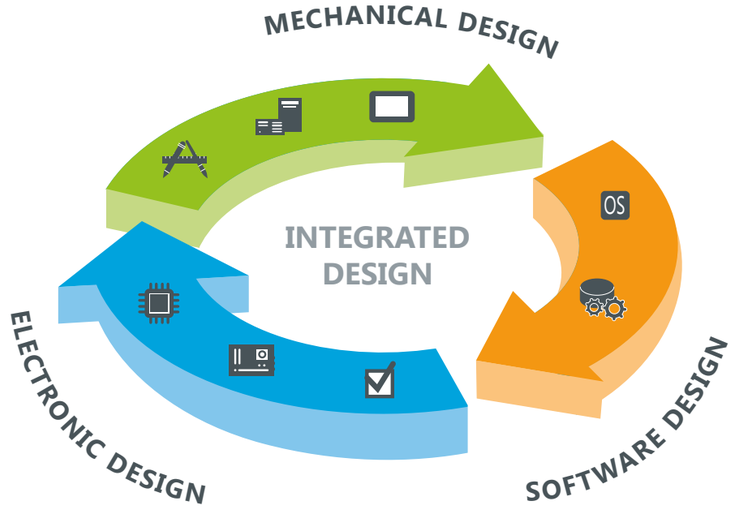
30% of ASEM human resources are dedicated to R&D. The team includes highly specialized engineers with complementary skills that cover all the electronic and mechanical design needs, as well as firmware and software development.

The close collaboration with leading technology trendsetters and the continuous dialogue with customers drive the specifications of hardware, firmware, software and systems engineering for each single product.

Thanks to the technological mastery of all system components and their perfect integration, ASEM designs performant, configurable, easy-to-use and reliable products for the most demanding industrial environments.

The different R&D teams work in synergy during the design process to ensure that hardware requirements and software features of each solution can be implemented in an integrated way.

The long experience and the high skills of the R&D engineers make ASEM a reliable technological partner to support machine builders and system integrators in the fast-changing industrial automation market.



High tech

& high quality manufacturing

ASEM manufacturing plants comprise two modern industrial facilities covering a total area of 8.500 sqm.

ASEM designs, engineers and manufactures electronic boards, products and systems internally.
The decision to assemble electronic boards in its own Italian facility is in contrast with the industry trend to relocate electronics production activities in Eastern Europe and Far East, but the results in terms of quality and in terms of flexibility confirm the accuracy of the company's strategic decision, much appreciated by customers.

For the automatic assembly of boards, ASEM uses technologically advanced machinery, tools and equipment, such as precise and fast SMT Pick & Place positioners, selective soldering machines for "through hole" components, ovens reflow and X-ray inspection ensuring high quality and flexibility.
The in-house assembly of electronic boards and a constant dialogue between operations' managers and the R&D engineers increase the sensitivity of electronics and mechanical designers towards production and test phases, with a consequent advantage of an increased reliability of the overall system.

The electronic components are supplied by the major global manufacturers and are specifically selected to ensure a long life cycle of products. Mechanical parts are purchased from European suppliers selected with rigorous qualification procedures.
100% of the electronic boards are subject to burn-in and functional tests for a minimum of 12 hours in special designed climatic chambers.
100% of the assembled systems are subjected to functional tests for 12 consecutive hours.

Continuity
The full control of design and production processes and the close cooperation with technology trendsetters allow ASEM to ensure a 7/10 years life cycle of its systems and reparability of the same for at least 5 further years, with availability of spare parts.
ASEM guarantees End of Life procedures lasting from 6 to 12 months for the Last Buy Order and deliveries.

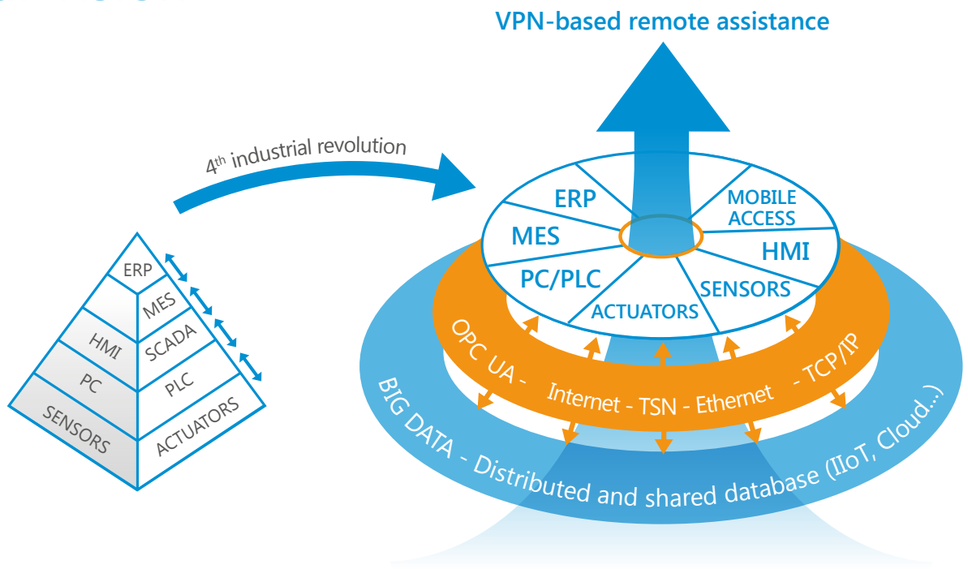
«Open Automation»
driving force of the Industry 4.0

SMART FACTORY

«Open & Standard» technologies integrated with flexible and user-friendly software solutions are leading the evolution to a digitalized industrial ecosystem, commonly known as "Industry 4.0".
The industrial IoT (Internet of Things) and the growing number of distributed smart devices connected to the Internet, transform factories in connected ecosystems in which sensors, automation devices, M2M («Machine to Machine») modules and software communicate and cooperate with each other and with humans in real time. These cyber-physical systems monitor physical processes, creating a virtual copy of the physical world enabling decentralized decision making.

This 4th Industrial Revolution is leading to a redesign of operations, services and Automation technologies providing the opportunity to significantly increase productivity, quality and flexibility of manufacturing systems.

Our vision



Designing UBIQUITY, an Internet-based software solution provinding remote access to automated machines and plants, ASEM was one the first companies understanding the value of Information and Communication Technologies applied to the Automation. Nowadays ASEM is one of the few European companies mastering on its own all driver technologies of the current 4th Industrial Revolution covering hardware development (x86, ARM platforms and OSs), and software, cloud and communication solutions design.

Asem PC-based Automation

Open & Standard technologies for Industry 4.0

Flexibility and openness
- Use of Open & Standard ARM and x86 technologies integrated with flexible and user-friendly software development tools
- Flexibility in creating distributed automation architectures

Internet & EtherNet based communication
- Internet as a communication media among different plants, smart factories and devices
- Horizontal communication among automation devices based on EtherNet protocols
- Vertical integration among different automation and business management solutions (Enterprise Resource Planning, Manufacturing Execution Systems, etc.) by means of open, non-proprietary communication protocols (OPC UA)

Open & Standard communication protocols
- OPC UA (Unified Architecture) is a non-proprietary M2M communication protocol for interoperability among different automation and business management solutions
- TSN, Time Sensitive Networking is an extension of EtherNet IEEE 802.1 stantard, designed to obtain real-time performances

Cyber Security
- Safety against threats and risks - physical integrity (hardware) and logical-functional (software) protection of the automation systems and content data

Asem Software Solutions

An added value for every machine and plant

HMI technology & Mobile devices
- Design of ergonomical user interfaces, able to provide users with all necessary information for a correct management of the production plant
- Use of mobile devices giving access to the plant and production data over the web

Remote access technology: UBIQUITY VPN
- Remote access to the plant by means of a VPN
- IEC 62443-3 & German BSI certification for security of internet based industrial communication

IoT & Cloud technologies
- Ability of the automation sistems to transfer information from sensors and field level to the cloud
- Information easily centralized and distributed
- The Cloud acts as a Gateway for an open and global interoperability of the smart factories
- Potentially unlimited data analysis power for the development of preventive and predictive maintenance models

Logic & Motion Control Technology
- Reduced design times thanks to modular, flexible and object oriented development tools, supported by real-time simulations
- Scalable control logic performances based on the choice of the CPU

Data integration among different automation software solutions

Smart Factory: manufacturing becomes intelligent

Ability of the smart factories to adapt to changing operating conditions and to sudden planning changes

→ Fast access to production data
→ Continuous production data diagnosis and analysis to obtain indications and results
→ More information available for machine/plant operators, support staff, production planners and management for a better business management
→ Condition monitoring: continuous monitoring of the machine / plant conditions
→ Power monitoring: consumption analysis and research for a higher efficiency

1. **Remote Assistance**
Solutions

UBIQUITY

UBIQUITY
The innovative remote assistance solution

In 2011 ASEM presented UBIQUITY, the innovative software platform for remote assistance and control.

The development idea came up to solve customer requests for an easy-to-use tool to install and setup machinery and, in particular, to manage post-sales service, phases during which customers often require modifications, customizations and support.

Traditionally, the most challenging aspect of meeting such needs is the availability of qualified technical resources, that would need the gift of **ubiquity**.

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
Value added for all automation devices

The software solution UBIQUITY enables the access to remote supervision and control systems (based on Windows CE and Windows 32/64 operative systems) and to the automation devices (PLC, drive, etc), connected to the EtherNet and Serial sub-networks of the IPC/ operator panel/controller/ router, through a VPN (Virtual Private Network) based on proprietary technology optimized for industrial communication.

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.

What I can do with UBIQUITY
- → Remotely program, debug and update IPC/operator panel/ controller/router on which UBIQUITY runtime is installed
- → Remotely program, debug and update PLC and automation devices connected to EtherNet and Serial sub-networks of IPC/operator panel/controller/router on which UBIQUITY runtime is installed
- → Malfunction Analysis
- → Software applications updates

How it works
- → Uses a simple internet connection
- → Creates a VPN between the remote assistance PC and the remote device activating sub-network access
- → Activates safety procedures with end-to-end sessions without any intermediate
- → Ensures reliability and service continuity thanks to a redundant and distributed server infrastructure

Highlights
- → Remote control of the IPC/HMI/Controller/routers
- → Access to EtherNet and Serial devices connected to the IPC/HMI/controller/router sub-network
- → Additional tools: remote desktop, file transfer, chat, etc.
- → Proprietary VPN technology optimized for industrial communication
- → Available with the same features for Windows 32/64 and Windows CE platforms
- → No additional hardware required
- → SSL/TLS safe connection and use of certificates
- → Simple and easy-to-use interface
- → Distributed and redundant server infrastructure ensuring service continuity
- → Possibility to implement a private server infrastructure
- → SDK (Software Development Kit) for programming the activation of the Control Center functions also by external applications
- → Runtime with multiple connection support
- → Built-in firewall:
  - VPN communication protocols filter
  - Higher security and bandwidth control
- → Advanced user profiling and access control
- → Trace of all Domain administration activities
- → Trace of all session's activities
- → Internet sharing for LAN devices
- → Remote desktop via Web access
- → Automatic update of the runtime
- → Multimonitor remote desktop support
- → IEC-62443-3 security certified
- → Support to NAT rules

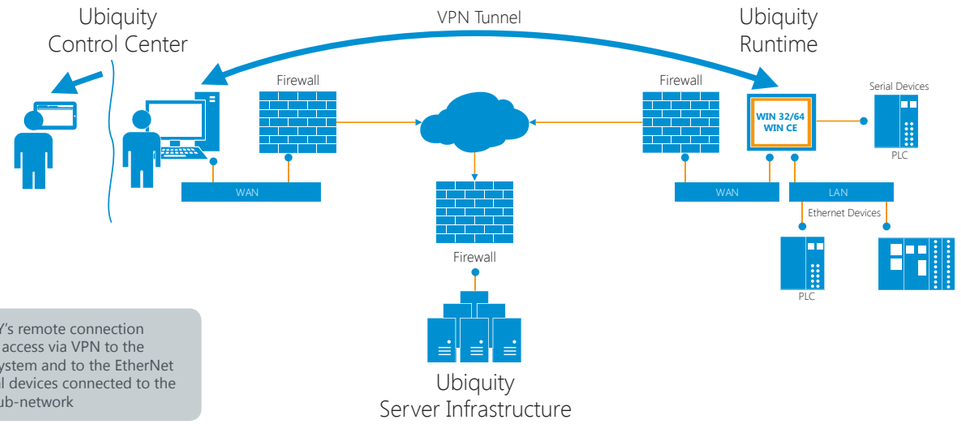
UBIQUITY is a simple and ready-to-use solution. Its installation does not require any ICT expertise in network and firewalls configuration. It has a user-friendly interface that enables access to remote systems (PLCs, HMIs, drives, etc.) with a simple click through a VPN optimized for industrial communications.

The solution allows transparent management of remote systems as if they were connected to the enterprise network and it does not require the support of network administrators for any NAT, proxy, firewall, public IP and reserved ports.

UBIQUITY adds huge value in ASEM supervision and control system, but it is also a solution delivered as a software component to install on ASEM IPCs and third parties hardware.

UBIQUITY is included in all ASEM Windows based HMIs, PACs and IPCs.

UBIQUITY
The components



UBIQUITY's remote connection diagram: access via VPN to the remote system and to the EtherNet and Serial devices connected to the system sub-network

UBIQUITY platform is made up of "Control Center", the software tool to be installed on the remote assistance PC to manage the "UBIQUITY Domain", of the Server infrastructure and different versions of Runtime.

The connection between Control Center and the Runtime installed on the remote IPC/HMI/controller/router leverages on a safe end-to-end connection.

UBIQUITY Control Center
Control Center is installed and executed on the remote assistance PC and allows to manage the domain, the users and their privileges, and the connection with remote devices.

UBIQUITY Runtime
The runtime is the software component installed and executed on the remote IPC/HMI/controller/router that supervises or controls the automation process. It requires neither additional hardware nor network configuration and it uses the existing Internet connection.

UBIQUITY Domain
UBIQUITY Domain is the "customer account" to make use of UBIQUITY infrastructure and services.

UBIQUITY Server Infrastructure
Communication between Control Center and Runtime is ensured by a redundant server infrastructure built and maintained by ASEM which uses state-of-the-art security technologies for data exchange such as SSL/TLS, public key cryptography, safe, fault tolerant and redundant server farms to secure data privacy and adequacy.

Web App
The UBIQUITY web application allows, with a web browser, to access the desktop of the remote devices from PCs, tablets or smartphones. From the web portal www.ubiquityweb.net it is possible to gain access to the UBIQUITY Domain, obtain the list of accessible devices and connect to the desktop of each connected remote system.

Runtime versions

Runtime component is available in Basic and PRO versions for WinCE and WIN 32/64 operating systems. The Basic version provides access to the IPC/HMI/remote controller and provides remote-desktop, remote task manager, remote file manager and chat with the remote operator. The PRO version enables also the access to all the automation devices (PLCs, drives, etc.) connected to the EtherNet or Serial subnetwork of the remote IPC/HMI/ controller/router . The Pro licence is available also as a portable licence, that can be moved up to 20 times to different devices.

UBIQUITY Runtime	Windows CE			Win32/64		
	Basic	Pro	Portable	Basic	Pro	Portable
Remote desktop (also multisession) file & task management, chat, screenshot	✓	✓	✓	✓	✓	✓
VPN to the remote device	✓	✓	✓	✓	✓	✓
VPN with access to the EtherNet sub-network of the remote system	-	✓	✓	-	✓	✓
VPN with access to the Serial sub-network of the remote system	-	✓	✓	-	✓	✓
Integrated firewall	✓	✓	✓	✓	✓	✓
API to interface proprietary software applications	✓	✓	✓	✓	✓	✓
Runtime operations persistent log	✓	✓	✓	✓	✓	✓
Multiple connections from different Control Center	✓	✓	✓	✓	✓	✓
Structured Domain creation, users and remote devices management	✓	✓	✓	✓	✓	✓
Internet connection via PROXY for Control Center and Runtime	✓	✓	✓	✓	✓	✓
Functioning in local network without license	✓	✓	✓	✓	✓	✓
Runtime update procedure with automatic shutdown and restart of services	✓	✓	✓	-	-	-
Log & Audit of Domain administration activities	✓	✓	✓	✓	✓	✓
Log & Audit of session's activities	✓	✓	✓	✓	✓	✓
Internet sharing for LAN devices	-	✓	✓	-	✓	✓
Movable up to 20 times	-	-	✓	-	-	✓
Automatic update of the runtime	✓	✓	✓	✓	✓	✓
Web access to the remote desktop	✓	✓	✓	✓	✓	✓
Multimonitor remote desktop support	-	-	-	✓	✓	✓

Domain types

UBIQUITY Domain is available in three different versions: Single Entity-Single Access, Single Entity-Multi Access and Multi Entity-Multi Access. Single Entity Domains are accessible by users of one only company, Multi Entity Domains are accessible by users of different companies. Single Access Domains give access to UBIQUITY infrastructure and services to one user at a time, Multi Access Domains give access to UBIQUITY infrastructure and services to more users at the same time.

	UBIQUITY Domain types		
	Single Entity-Single Access	Single Entity-Multi Access	Multi Entity-Multy Access
Domain accessible by	Users of one company	Users of one company	Users of more companies
Remote assistance services enabled for	One user per time	More users at the same time	More users at the same time

Server infrastructure

ASEM Server Infrastructure, for each customer related Domain, gives no limitation to the number of configurable users, devices, concurrent remote desktop and VPN sessions.

To provide an excellent service ASEM built a redundant and globally distributed server infrastructure that counts two farms in Europe (Munich and Amsterdam), two in the United States (western and eastern coast) one in South America (Brazil) and two in Asia (Singapore and Hong Kong).

Private Server Infrastructure

As ASEM provides a redundant and distributed Server infrastructure to manage UBIQUITY services, it is also possible to replicate and build up a **private server infrastructure** managed autonomously.

Private Server
With the Private Server package, it is also possible to install a private server infrastructure in complete autonomy. The server application can be installed on dedicated systems or cloud servers.
Two types are available: Primary Server and Secondary Server.

The **Primary Server** is the basic software package and provides autentication security and communications as the ASEM server infrastructure.

Primary Server:
→ Data storage: authentication, permission and security management
→ UBIQUITY Runtime licenses management
→ Relay feature to implement end-to-end communication

The **Secondary Server** is an optional package with relay functionality, to improve and increase the connectivity performances. It is possible to buy several secondary server licences and install them in different locations worlwide.

Secondary Server (option):
→ Relay feature to implement end-to-end communication
→ You can install multiple instances to reduce latency and balance traffic load.

UBIQUITY
Highlights

Security Certified
UBIQUITY 8 obtained the security certification for internet-based industrial communications.
It has been certified in every component and confirms its full compatibility with the reference standards IEC 62443-3.

This certificate further confirms the value of UBIQUITY solution setting the highest security standard of the industry.

Proprietary VPN
Differently from VPNs based on the IP layer, UBIQUITY VPN works on the data-link layer bringing concrete advantages:
→ Remote assistance PC becomes part of the remote host network using the same physical IP addresses
→ Remote assistant can use broadcast-based protocols
→ It is not necessary to configure the gateway of the remotely accessed devices. The remote assistant connection appears as a locally connected IP.

Remotation of Serial Communication
UBIQUITY installs a virtual serial port on the Control Center PC. This virtual serial port can be mapped on a physical port of the remote device executing UBIQUITY Runtime.
Benefits:
→ Possibility to carry out supervision and diagnostics tasks on remote serial devices.

Multi-client
UBIQUITY Runtime supports multiple concurrent connections from different supervisors both with interactive session (remote desktop, file transfer, etc) and in VPN. Control Center can activate multiple interactive sessions with different devices and only one VPN connection to a remote device.

Benefits:
→ Maximum productivity due to the possibility to operate simultaneously on the same system.

Full compatibility with the existing firewalls
UBIQUITY Control Center and UBIQUITY Runtime connection are automatically configured using outbound connections which are recognized as safe and therefore allowed by firewall policies.

Benefits:
→ No need to configure the end-user's firewall and network. Only an outbound connection is necessary.

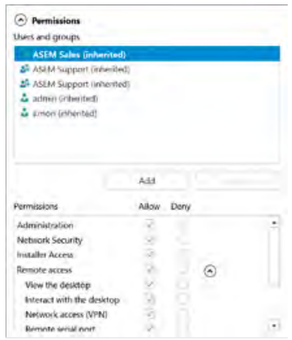
→ UBIQUITY automatically uses enabled TCP and UDP protocols and can use HTTP, HTTPS or custom ports, ensuring compatibility with existing IT policies.

Industrial Security
UBIQUITY infrastructure uses the highest network security standards, such as:
→ IEC-62443-3 security certified
→ SSL/TLS protocol via UDP or TCP
→ Asymmetric cryptography and X509 certificates for authentication sessions
→ Symmetric cryptography for data transimission
→ Message Authentication Codes (MAC) for data integrity.

UBIQUITY
Highlights

Integrated firewall
UBIQUITY's integrated firewall allows to control communication packets passing through the VPN. Introducing firewall policies, it is possible to filter EtherNet datagrams depending on communication protocols and target addresses.
The server infrastructure provides a library of policies that can be imported into the Domain and applied to devices and folders. Filtering rules can be assigned to single users or groups of users.
Benefits:
→ Increased security and bandwidth control
→ Increased flexibility in access permissions
→ Possibility to limit a user (or users group) to run only a certain number of software tools

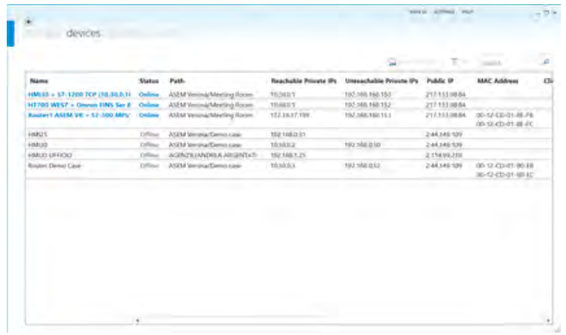
Access profiling and control
UBIQUITY allows the creation of an unlimited number of users, user groups, device groups, each with different access rules.
Permissions can be flexibly configured for each user, up to the single device or folder.
UBIQUITY provides 4 different user profiles: **Administration** enables folders and users management, **Device Installer** allows to add new devices in the Domain, **Network security** enables configuration and set up of Firewall rules, **Remote access** allows to practice remote access sessions.
Benefits:
→ Users can implement their own organizational structure (made up of users, administrators, power-users, third parties, limited users, etc.) to reach in a flexible and controlled way all customers around the world
→ Access to remote devices is properly secured and restricted to the required personnel.

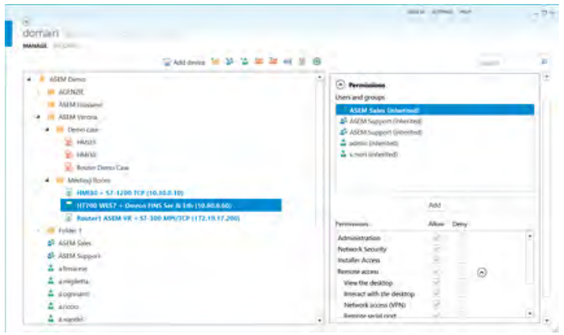


Internet connectivity sharing with LAN devices
Internet connectivity can be shared with specific devices of the LAN network:
Benefits:
→ Internet access from laptops of IP phones connected to the LAN network
→ Usage of UBIQUITY runtime services on LAN devices
→ Access to the web servers of LAN devices

Automatic updates
With UBIQUITY it is now immediate to get information about the availability of an update for UBIQUITY Runtimes and UBIQUITY Routers selecting which devices need to be updated and when.
Updates can be executed immediately or scheduled within a specified time interval.
The process runs in safe mode and without the need for any presence on the field.
In the same way, also UBIQUITY Control Center supports notification for updates availability, in order to keep it always aligned with the latest release.

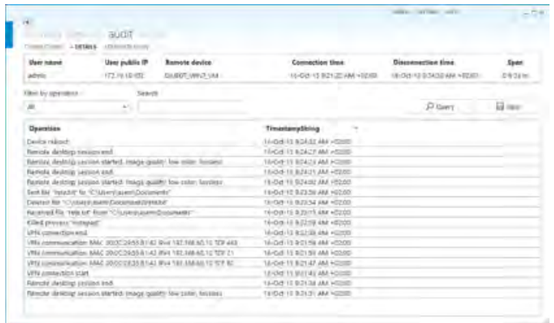
Modern user interface
Control Center provides an intuitive graphic interface based on Modern-UI standards.
The design presents additional controls and views, as the table view that enables the "Search" function using the text field on the right of the tree view that gives users (or groups of users) or device (directory) information.
Benefits:
→ UBIQUITY Control Center is easy, clear and intuitive
→ Users' daily operations are simplified and immediate.





SDK Control Center
With the SDK (Software Development Kit) it is possibile to program the activation of Control Center functions also via external applications.
Control Center SDK is made of Assembly.NET components and a user manual for the usage of the API (Application Programming Interface) with the related code examples.
With the available interfaces you can execute the following tasks:
→ Domain login/logout
→ Browse domain
→ Connect/disconnect remote device
→ Connect/disconnect VPN
→ Connect/disconnect virtual serial port
→ File transfer to and from the remote device
→ Launch application on the remote device
→ End process and restart

Log and Audit of Domain and sessions' activities
→ Trace of all Domain Administration activities with a simple audit tool
→ Trace of all session activities: all activities and chat contents are registered for 30 days and accessible by domain administrators.



UBIQUITY
Highlights

Remote desktop
Control center includes a remote desktop function.
Benefits:
→ No need to activate RDP services or to install optional utilities like VNC.

File exchange
Control Center includes a complete tool to perform remote files download and upload.
Benefits:
→ No need to open shared folders or to install optional utilities like FTP servers.

Statistics and Audit
UBIQUITY records and stores all the remote access activities on the Domain.
Benefits:
→ The network administrator can verify anytime the post-sales support workload, the accuracy of the jobs carried out and get statistics for customers, PCs and operators.

Chat
Control Center and Runtime include a chat.
Benefits:
→ Instead of using the phone to communicate with remote operators, the user can simply take advantage of UBIQUITY chat reducing costs.

Cloud-based accessibility
UBIQUITY domain is registered on the Cloud. This architectural paradigm allows service continuity and data safety.
Benefits:
→ Wherever the user is located, he can launch Control Center getting access to remote machines worldwide.

Windows Embedded

Full support of Embedded platforms
UBIQUITY Runtime is available for the following operating systems:
→ Windows XP, Vista, 7, 8 (32 and 64 bit)
→ Windows Embedded Standard 2009, Windows Embedded Standard 7E and 7P
→ Windows CE 5.0, 6.0, Windows Embedded Compact 7.0

Connectivity quality measurement
UBIQUITY provides a simple function that measures connectivity quality on both local and remote network. Performances are measured in terms of latency time, jitter and packet drop.

Requirements

The following tables list the minimum hardware, software and network requirements for the correct installation and usage of UBIQUITY.

Control Center		
SW Requirements	**Operating System**	**HW Requirements**
.Net Framework 4.0 Client Profile	Windows XP SP3	At least Celeron 1.6 GHz with 512 MB RAM
	Windows 7 32/64 bit	
	Windows 8.1 32/64 bit	
	Windows 10	
	Windows Server 2008 and Server 2008 R2	
	Windows Server 2012 and Server 2012 R2	

Runtime		
SW Requirements	**Operating System**	**HW Requirements**
.Net Compact Framework 3.5	Windows CE 5.0 (x86)	256 MB RAM At least CPU 500 MHz
	Windows CE 6.0 (x86)	
	Windows CE Compact 7.0 (ARM, x86)	
.NET Framework 2.0 SP1 or 3.5 (distributed with setup)	Windows XP SP3	512 MB RAM At least CPU 500 MHz
	Windows Embedded Standard 2009 (XPe)	
	Windows Embedded Standard 7E/7P 32/64 bit	
	Windows 7 32/64 bit	
	Windows 8.1 32/64 bit	
	Windows 10, Windows 10 IoT Enterprise	
	Windows Server 2008 and Server 2008 R2	
	Windows Server 2012 and Server 2012 R2	

Private Servers			
Primary Server		**Secondary Server**	
Hosting	**Software**	**Hosting**	**Software**
2 public IP addresses, one of them associated to an Internet Domain name	Windows 7 64 bit or later	1 public IP address	Windows 7 64 bit or later
	Windows Server 2008 64 bit or later		Windows Server 2008 64 bit or later
	SQL Server 2012 or later, Express edition or greater		
	.NET Framework 4.6.1 Client		.NET Framework 4.6.1 Client

UBIQUITY Router

UBIQUITY Routers

Remote access and monitoring have no limits

UBIQUITY ROUTER

UBIQUITY Routers complete the range of Remote Assistance Solutions with a combined hardware + software solution that ensures remote access and remote monitoring functionalities on every automation device even with extended temperature range.

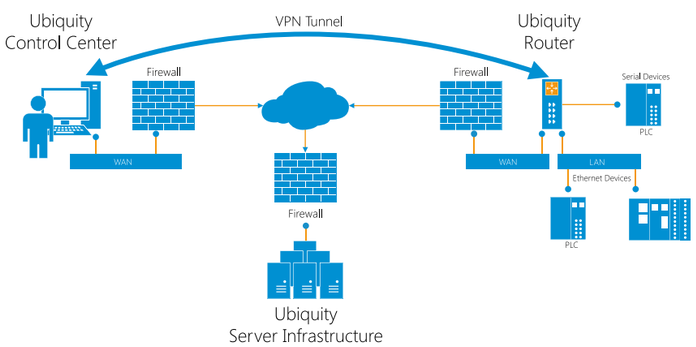
With the built-in 2G/3G/3G+ modem of RK11 and RM11 it is possible to reach and monitor also plants and automation networks without a wired Internet connection.

UBIQUITY software creates a VPN between the Control Center PC and the router enabling access to automation devices connected via EtherNet and Serial ports. The features of Premium HMI, ASEM's HMI software, enable additional remote monitoring functionalities that allow RM10 and RM11 to directly access controller's memory and perform data sampling, archiving and monitoring, dispatch of alerts and notifications.

UBIQUITY Routers bring remote assistance services on plants and machinery where it is not possible to install the UBIQUITY software solution, as automation systems with HMI/IPC/controller with operating system other than WIN 32/64 and WIN CE, machinery controlled only by serial devices without EtherNet interface and even machines and plants without a wired Internet connection.

RK10 / RK11

Remote Access Industrial Routers



RK10 **RK11**

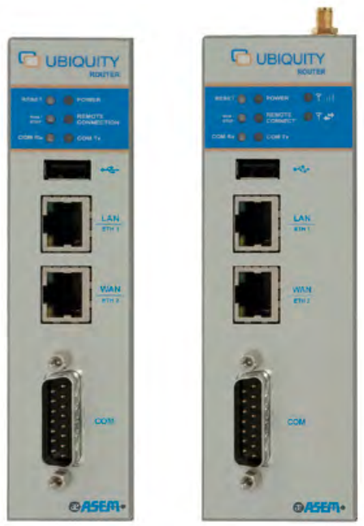
RK10 ET **RK11 ET**

RK10 and RK11 systems and the respective extended temperature range ET versions are dedicated to remote assistance based on a 1 GHz ARM Cortex A8 processor enclosed in a "book mount" stainless steel case for DIN rail or wall mounting, with 9÷36 V DC power supply range. RK families have one 10/100 Mbps EtherNet WAN port for Internet connection, one 100 Mbps EtherNet LAN for automation devices connection, an isolated serial interface RS 232/422/485/MPI and one USB 2.0 port.

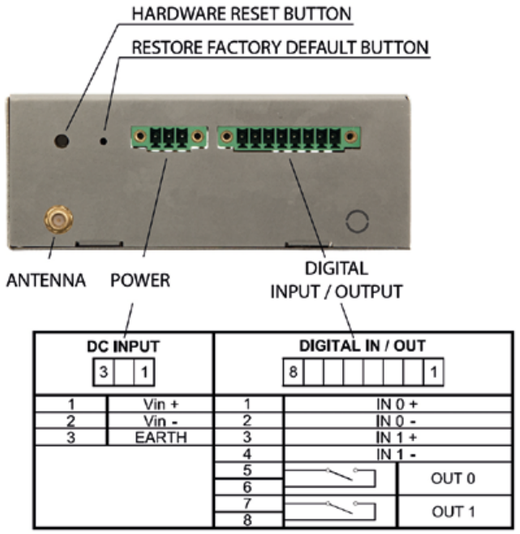
The systems include one 24 V DC digital input for the security key activation that activates the router also from remote and one 24 V DC digital input for the remote reset function.
RK10 and RK11 include also a low voltage relay output to remote the "UBIQUITY RK enabled for WAN connection" signal and a relay output to remote the "ongoing remote assistance service" signal.
RK11 family integrates a built-in 2G/3G/3G+ EDGE/HSPA quadriband modem compatible with cellular networks worldwide.

Highlights

→ UBIQUITY software creates a VPN between the Control Center PC and the Router granting access to devices connected via EtherNet and Serial ports
→ Debug, programming and update of the automation devices connected to the RK10/11 via EtherNet and Serial interfaces
→ Proprietary VPN technology designed for Industrial communication
→ MPI protocol support
→ Immediate setup and configuration
→ Firewall friendly
→ RK11 systems integrate a built-in 2G/3G/3G+modem to access machines and plants without a wired Internet connection



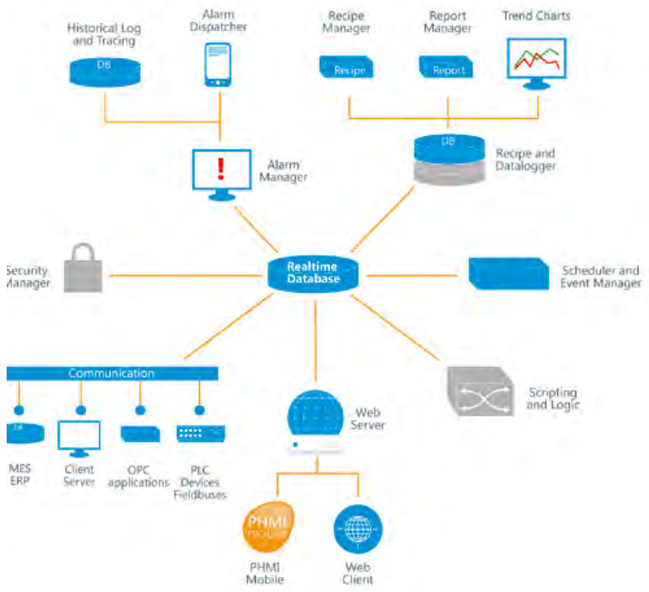
RK10 **RK11**
RK10 ET **RK11 ET**



		RK10	RK10 ET	RK11	RK11 ET
CELLULAR NETWORK	Standard	-		2G/3G/3G + EDGE/HSPA quadriband modem up to 5,76 Mbps upload / 14,4 Mbps download	
	Antenna			1 x SMA connector (auxiliary Diversity antenna option)	
	SIM			1 x SIM card socked push-push type	
REMOTE ASSISTANCE SW		ASEM UBIQUITY Router Runtime			
O.S. INSTALLED		Microsoft Windows Embedded Compact 7 Pro			
CASE	Material	Stainless Steel			
	Mounting	DIN rail book mounting holders, Wall book mounting kit included			
	Dimensions	36x138x116 mm		45x138x116 mm	
PROTECTION GRADE		IP20			
PROCESSOR		ARM Cortex A8 processor i.MX535 1 GHz	ARM Cortex A8 processor i.MX537 800 MHz	ARM Cortex A8 processor i.MX535 1 GHz	ARM Cortex A8 processor i.MX537 800 MHz
SYSTEM MEMORY - RAM		1 GB	512 MB	1 GB	512 MB
MASS STORAGE		256 MB Ready-Only NAND-Flash for operating system and runtime			
		4 GB eMMC (Solid State Disk) 8bit, file system organization			
LAN		LAN1 EtherNet 100 Mbps (RJ45) LAN2 EtherNet 10/100 Mbps (RJ45)			
USB		1 x USB 2.0			
SERIAL		1 x RS-232/422/485 (DB15M) isolated			
DIGITAL INPUT	IN0	Security key for WAN connection activation. Function managed by Control Center			
	IN1	UBIQUITY Router software reset			
	Type	0÷24V DC, 500V isolated			
DIGITAL OUTPUT	OUT0	UBIQUITY Router WAN enabled connection signal			
	OUT1	Remote assistance service running signal			
	Type	Output with relay 200mA@24V DC max for contact (N.O. - normally open)			
BUTTONS		UBIQUITY Router hardware reset UBIQUITY Router factory default restore			
POWER SUPPLY INPUT		24V DC (9÷36 V DC)			
OPERATING TEMPERATURE		0°C÷ +50°C	-20°C ÷ +70°C	0°C÷ +50°C	-20°C ÷ +60°C
APPROVALS		CE, cULus listed (UL61010)			

RM10 / RM11

Remote Access and Monitoring Industrial Routers



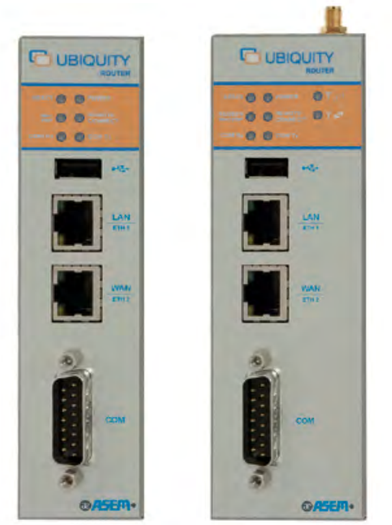
RM10
RM10 ET

RM11
RM11 ET

RM10 and RM11 systems and the respective extended temperature versions ET add remote monitoring functionalities to the UBIQUITY RK families providing a complete solution for applications where remote access needs to be supported by constant data monitoring.
RM solutions provide flexible data monitoring and data collection functionalities managing efficiently real-time data, historical archives and instant notifications.
Data is stored in the local memory of the RM systems and UBIQUITY Control Center provides an easy way to export data and monitor the application from remote.
Data monitoring features include alarm notifications via e-mail and SMS.
Premium HMI RM Runtime provides compatibility with PLC and controllers protocols allowing RM systems to connect directly to the PLC's memory for data acquisition. Data gateway is also supported and RM families can be programmed to transfer data between different communication drivers.
UBIQUITY RM families provide also VBA scripting functions that extend application flexibility providing a comprehensive solution to all common needs of a data monitoring device.
Furthermore, RM families allow graphic screens programming and provide a web client that enables Web and Mobile HMI visualization of local screens via UBIQUITY Control Center and web browsers.
HMI screens are also accessible from the local Wi-Fi network using the Premium HMI Mobile App for iOS and Android devices.
RM11 family integrates a built-in 2G/3G/3G+ EDGE/HSPA quadriband modem compatible with cellular networks worldwide.
RM families are a full-featured remote monitoring solution that leverages on the innovative remote assistance solution UBIQUITY and Premium HMI advanced functionalities.

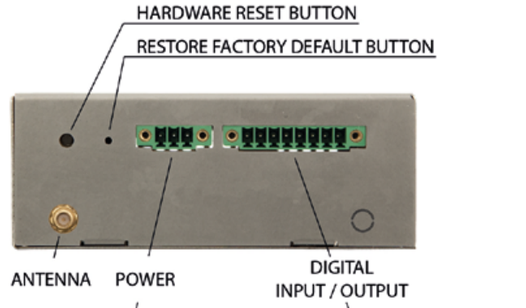
Highlights

In addition to RK families features, RM10 and RM11 provide:
→ Flexible Scripting with integrated VBA Engine and multi-threading support
→ Web and Mobile HMI using UBIQUITY Control Center, web browser or Premium HMI Mobile App
→ Data logging (with data export procedure)
→ Alarms management
→ SMS alarm and notifcation dispatcher based on SMPP protocol
→ Recipe management
→ Integrated gateway for multiple PLC drivers communication
→ Programmable with Premium HMI Studio
→ RM11 systems integrate a built-in 2G/3G/3G+ modem to access machines and plants without a wired Internet connection



RM10
RM10 ET

RM11
RM11 ET



		RM10	RM10 ET	RM11	RM11 ET
CELLULAR NETWORK	Standard	-		2G/3G/3G + EDGE/HSPA quadriband modem up to 5,76 Mbps upload / 14,4 Mbps download	
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	SIM			1 x SIM card socked push-push type	
REMOTE ASSISTANCE SW		ASEM UBIQUITY Router Runtime			
REMOTE MONITORING SW		ASEM Premium HMI RM Runtime			
O.S. INSTALLED		Microsoft Windows Embedded Compact 7 Pro			
CASE	Material	Stainless Steel			
	Mounting	DIN rail book mounting holder, Wall book mounting kit included			
	Dimensions	36x138x116 mm		45x138x116 mm	
PROTECTION GRADE		IP20			
PROCESSOR		ARM Cortex A8 processor i.MX535 1 GHz	ARM Cortex A8 processor i.MX537 800 MHz	ARM Cortex A8 processor i.MX535 1 GHz	ARM Cortex A8 processor i.MX537 800 MHz
SYSTEM MEMORY - RAM		1 GB	512 MB	1 GB	512 MB
MASS STORAGE		256 MB Ready-Only NAND-Flash for operating system and runtime			
		4 GB eMMC (Solid State Disk) 8bit, file system organization			
LAN		LAN1 EtherNet 100 Mbps (RJ45) LAN2 EtherNet 10/100 Mbps (RJ45)			
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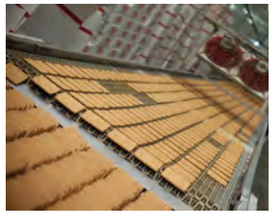
POWER SUPPLY INPUT		24V DC (9÷36 V DC)			
OPERATING TEMPERATURE		0°C÷ +50°C	-20°C ÷ +70°C	0°C÷ +50°C	-20°C ÷+60°C
APPROVALS		CE, cULus listed (UL61010)			

2. **HMI** Solutions

HMI Solutions
Solutions satisfying all your automation requirements








Industrial machinery design and development time reduction.

Analysis demonstrate that software development costs account for over 80% on the costs of automation design. This is the reason why it is crucial to make use of design tools capable of saving time and money in development, accompanied and supported by a company like ASEM, acknowledged for the excellence of its customer service and technical support.

Openness and flexibility to meet the specific requirements of final customers.

Today machine manufacturers need «Open & Standard» software solutions providing a high level of flexibility in adapting applications to specific customer needs, protecting investments and know-how.

Perfect integration of Hardware and Software.

All ASEM software solutions are integrated in hardware systems designed, industrialized and entirely manufactured in company facilities and plants.
The technological mastery of all the system components guarantees the high-quality level and the perfect integration between Hardware and Software platforms.

With the HMI Solutions based on Premium HMI software platform, ASEM provides the market with high level HMI systems with a powerful and flexible development tool to implement open and scalable user interface projects.

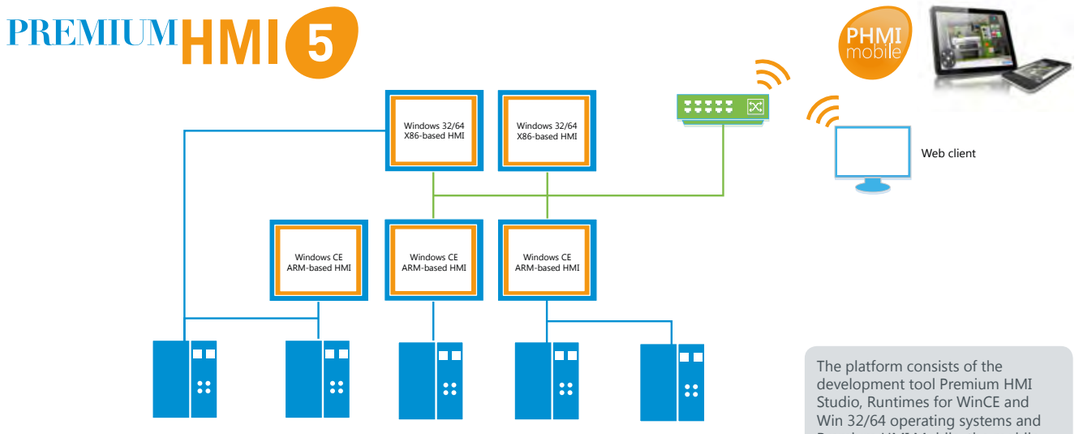
Transversality is an important strength of Premium HMI, as it allows the same project to be used either on HMI based on ARM or x86 platforms or with WinCE or WIN 32/64 Runtime, without the need to modify or change the settings of Premium HMI Studio development tool.

This feature is obviously appreciated by machine manufacturers who know the burdens of investments in software design and, in this way, can concentrate their focus on developing the distinctive features of their machinery.

To make Windows CE-based solutions more competitive, ASEM has decided to integrate the innovative remote assistance platform **UBIQUITY** in the HMI25, HMI30, HMI40, HMI2150 and HMI2200, making it possible to access the system and its EtherNet and Serial sub-networks from remote.

Hardware design and manufacturing combined with software development ability, allow ASEM to offer full-featured HMI solutions suited to meet all requirements, from the simplest to the most complex, requiring advanced functionalities as well as openness and flexibility.

Premium **HMI 5**



The platform consists of the development tool Premium HMI Studio, Runtimes for WinCE and Win 32/64 operating systems and Premium HMI Mobile, the mobile App for iOS and Android devices (only compatible with Advanced Runtimes).

With Premium HMI software platform, ASEM has been providing valuable visualization systems appreciated for the **quantity and quality of the functionalities** available and the **transversality** of the platform, which makes it possible to use the same project both on HMI solutions based on ARM or x86 hardware platforms (also with multicore architecture support), with WinCE or WIN 32/64 Runtimes without any need to modify or change settings in the '**Premium HMI Studio**' development tool.

Premium HMI 5

PHMI 5 supports the latest **Microsoft® XAML** visualization technologies that enable the design of advanced and modern operator interfaces, typical of latest generation mobile devices.
PHMI 5 supports **16 million colors**, manages transparency and colour shade effects, supports **multitouch gestures** which further improve the user experience of HMI projects and provides a rich library of graphic objects particularly accurate from an aesthetic and ergonomic point of view making it possible to design unprecedented user interface screens.
The XAML graphic objects library, available for Win CE and Win 32/64, is added to the existing library maintaining full compatibility, so that the user just needs to make a mouse click in the development tool to **convert existing projects introducing new graphic objects** without making any changes, retaining all scripts assigned to graphic objects or variables linked to properties that vary dynamically.
PHMI 5 is a unique HMI platform in the competitive context due to the possibility to develop the graphical interface with XAML objects and Windows CE enviroment.

Multitouch and OPC UA

Premium HMI 5 supports Multitouch programming for Win 32/64 and WEC 7 systems with multicore processors and supports OPC UA protocol, leading the way to the distributed connectivity of the "Industry 4.0" and Industrial "IoT".

"Total Cost of Ownership" reduction

With the intuitiveness of Premium HMI object design, the project debugging tools and the possibility to use a single development tool for any type of application (from the simplest on operator panels to the most complex on Panel PCs or the most innovative on smart mobile devices), it becomes easy to save a considerable amount of time in learning, personnel training, application maintenance and end-user support and service.

Runtime versions

To provide supervision systems that can meet different performance, functionality and price requirements, ASEM offers two runtime versions for WinCE (Basic and Advanced) and three runtime versions for WIN 32/64 (Basic, Pro and Advanced).

Function	Premium HMI 5.0 BASIC for WinCE	Premium HMI 5.0 ADVANCED for WinCE	Premium HMI 5.0 BASIC for Win 32	Premium HMI 5.0 PRO for Win 32	Premium HMI 5.0 ADVANCED for Win 32
RealTime DB	Max. 1024 byte	Max. 8192 byte	Max. 2048 byte	Max. 2048 byte	Max. 4096 byte
Normalization	✓	✓	✓	✓	✓
ODBC Realtime	✓	✓	-	✓	✓
Trace DB	✓	✓	-	✓	✓
Data Structures	✓	✓	✓	✓	✓
OPC DA Client	✓	✓	✓	✓	✓
OPC UA Client	✓	✓	✓	✓	✓
OPC Client XML DA	-	-	✓	✓	✓
Networking	✓	✓	✓	✓	✓
Script's IntelliSense Tags	✓	✓	-	✓	✓
Graphic User Interface					
Vector Graphics Editor	✓	✓	✓	✓	✓
XAML Vector Graphics	✓(1)	✓ (1)	✓	✓	✓
BMP, GIF, JPG, WMF, EMF support	✓	✓	✓	✓	✓
Gesture Recognition	✓	✓	✓	✓	✓
Objects Drag & Drop	-	-	✓	✓	✓
Dynamic Animation	✓	✓	✓	✓	✓
Symbols library	✓	✓	✓	✓	✓
Import/Export Symbols	✓	✓	✓	✓	✓
Public Symbols	✓	✓	-	✓	✓
Power Template (VBA Symbols)	✓	✓	-	✓	✓
Grid	✓	✓	-	✓	✓
Synapses	✓	✓	-	✓	✓
Schedulers	✓	✓	✓	✓	✓
Editing Menu	✓	✓	✓	✓	✓
Style Reference Management in Symbols	✓	✓	-	✓	✓
Dundas Potentiometer	-	-	✓	✓	✓
IP Video Camera Window	✓	✓	✓	✓	✓
Objects' Alias Management	✓	✓	-	✓	✓
Multitouch	✓	✓	✓	✓	✓
Alarms and logs	Max 1024 alarms	Max 4096 alarms	Max 2048 alarms	Max 2048 alarms	Max 4096 alarms
Alarm Management	✓	✓	✓	✓	✓
Historical Management (CSV)	✓	✓	✓	✓	✓
Historical Management (ODBC)	✓	✓	-	✓	✓
Alarm notification (SMS, E-Mail)	-	✓	-	-	✓
SMS sending via SMPP protocol	-	✓	-	-	✓
Alarm Areas	✓	✓	✓	✓	✓
Comment on ACK alarm	✓	✓	-	✓	✓
Recipes - Data Logger					
Recipes / Data Logger (XML)	✓	✓	✓	✓	✓
Recipes / Data Logger (ODBC)	Max -. 2	✓	-	✓	✓

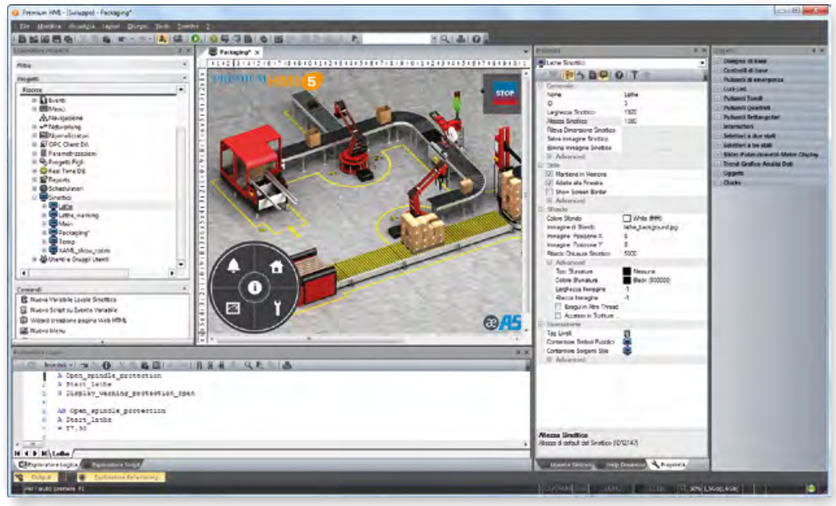
(1) XAML vector graphics supported exclusively by Windows Embedded Compact 7 and newer

Function	Premium HMI 5.0 BASIC for WinCE	Premium HMI 5.0 ADVANCED for WinCE	Premium HMI 5.0 BASIC for Win 32	Premium HMI 5.0 PRO for Win 32	Premium HMI 5.0 ADVANCED for Win 32
Reports					
Text Reports	✓	✓	✓	✓	✓
Graphic Reports and Alarm Statistics	✓	✓	✓ with limitations (access to data only through IMDB)	✓	✓
Trends					
RealTime Trends	✓	✓	✓	✓	✓
Historical Trends on .CSV files	✓	✓	✓	✓	✓
Historical Trends (linked to Data Logger XML)	✓	✓	✓	✓	✓
Historical Trends on Database (ODBC)	✓	✓	-	✓	✓
Users & Password					
1024 levels management	✓	✓	✓	✓	✓
Users' groups management	✓	✓	✓	✓	✓
CFR21	✓	✓	-	✓	✓
Runtime users	✓	✓	✓	✓	✓
Dynamic Multi-language	✓	✓	✓	✓	✓
Unicode Support	✓	✓	✓	✓	✓
Drivers					
Max number Drivers	Max -. 2	Max -. 4	Max -. 2	Max -. 2	Max -. 4
Tag Importer from PLC	✓	✓	✓	✓	✓
Event Objects	✓	✓	✓	✓	✓
Normaliser Objects	✓	✓	✓	✓	✓
Scheduler Objects	✓	✓	✓	✓	✓
Logic					
IL Logic (Step5-Step7)	✓	✓	✓	✓	✓
VBA Logic (WinWrap Basic)	✓	✓	Max 2 scripts	✓	✓
VBA Interface for communication drivers	✓	✓	-	✓	✓
Synapse Logic	✓	✓	-	✓	✓
Networking	✓	✓	✓	✓	✓
Child Projects	✓	✓	-	✓	✓
Synoptic Navigation	✓	✓	-	✓	✓
Integration to Visual Source Safe	✓	✓	✓	✓	✓
Web Client	-	Max 4 clients	-	-	Max 2 clients
Premium HMI Mobile	-	✓	-	-	✓
Touchscreen Support	✓	✓	✓	✓	✓
Crossed List	✓	✓	✓	✓	✓
Debugger	✓	✓	✓	✓	✓

Protocols / devices	Interface			Operating System		
				WinCE		Win32/64
	Serial	EtherNet	HW add-on	ARM	x86	x86
CODESYS, ELAU, KEB, PARKER,...	-	✓	-	✓(1)	✓	✓
Rockwell DF1 and Data Highway	✓	-	-	✓	✓	✓
Rockwell EtherNet/IP	-	✓	-	✓	✓	✓
Rockwell EtherNet/IP 1800	-	✓	-	✓	✓	✓
Applicon cards	-	-	Applicon Cards	-	-	✓
B&R PVI with protocol INA2000 (2)	✓	✓	-	✓	✓	✓
B&R TCP (3)	-	✓	-	✓	✓	✓
BACNET IP	-	✓	-	-	-	✓
Beckhoff Twincat (ADS protocol) (4)	-	✓	-	✓	✓	✓
CANOpen Master	-	-	NETcoreX CANOpen Master	-	✓	✓
CANOpen Slave only PDO	-	-	NETcoreX CANOpen Slave	-	✓	✓
KNX (EIBUS Konnex)	✓	✓	-	-	-	✓
ELAP	✓	-	-	✓	✓	✓
FATEK TCP	-	✓	-	✓	✓	✓
GE FANUC SNP-X	✓	-	-	-	✓	✓
GE SRTP2	-	✓	-	✓	✓	✓
Hilscher DPM in PROFIBUS, CANOPEN	-	-	CIF cards	-	✓	✓
Hilscher MPI	-	-	CIF card	-	✓	✓
Hilscher NETLINK	-	✓	-	-	✓	✓
Hilscher NETX MPI	-	-	NETCoreX MPI	-	✓	✓
Hilscher NETX PROFIBUS Slave	-	-	NETCoreX PROFIBUS SLAVE	-	✓	✓
Hitachi PLC serie H	✓	-	-	-	-	✓
IBH Softech	-	✓	-	✓	✓	✓
KEB DIN66109-II	✓	-	-	✓	✓	✓
LENZE LECOM AB	✓	-	-	✓	✓	✓
LonWorks	✓	✓	-	-	-	✓
Mitsubishi MELSEC A	-	✓	-	-	-	✓
Mitsubishi MELSEC FX	✓	-	-	✓	✓	✓
Mitsubishi MELSEC Q	✓	✓	-	✓	✓	✓
Mistubishi FX3U TCP	-	✓	-	-	-	✓
Modbus RTU Master / Slave	✓	-	-	✓	✓	✓
Modbus TCP IP	-	✓	-	✓	✓	✓
Moeller SUCOM	✓	-	-	✓	✓	✓
OMRON FINS	✓	✓	-	✓	✓	✓
OMRON Host Link	✓	-	-	✓	✓	✓
OMRON EtherNet/IP	-	✓	-	✓	✓	✓
PANASONIC FP MEWTOCOL	✓	✓	-	✓	✓	✓
ROBOX	-	✓	-	✓	✓	✓
SAIA via SCOMM DLL	✓	✓	-	-	-	✓
SAIA S-BUS	✓	✓	-	✓	✓	✓
SCHNEIDER UNITELWAY SLAVE	✓	-	-	✓	✓	✓
SIEMENS MPI PC ADAPTER	✓	-	-	✓	✓	✓
SIEMENS S5 CPU	✓	-	RS-232 to Current Loop Converter	✓	✓	✓
SIEMENS S5 DK3864R	✓	-	-	✓	✓	✓
SIEMENS S7 200 PPI	✓	-	-	✓	✓	✓
SIEMENS S7 300/400 MPI (5)	✓	-	-	✓	✓(6)	-
SIEMENS S7 TCP 300/400	-	✓	-	✓	✓	✓
SIEMENS SAPI S7	✓	-	SIEMENS CP5611, 5613, 5614, 5412 e SIEMATIC NET	-	-	✓
SIEMENS Simotion	-	✓	-	✓	✓	✓
SIEMENS S7 TIA (7)	-	✓	-	✓	✓	✓
SIEMENS S7 Profinet (8)	-	✓	-	✓	✓	✓

(1) Requires CODESYS Gateway running on controller side
(2) Requires PLC communication support program supplied by ASEM
(3) PVI communication libraries supplied by B&R are mandatory
(4) ADS communication libraries supplied by Beckhoff are mandatory
(5) "EtherNet-MPI Gateway" function, local or remote using UBIQUITY, supported ONLY with PHMI5
(6) Only OT600/HMI600/Smartbox
(7) Supports the variable import from TIA Portal and communication S7-1200 / S7-1500 controllers via absolute addressing (no symbolic)
(8) Supports the variable import from TIA Portal and communication S7-1200 / S7-1500 controllers via symbolic addressing

Premium HMI
Features



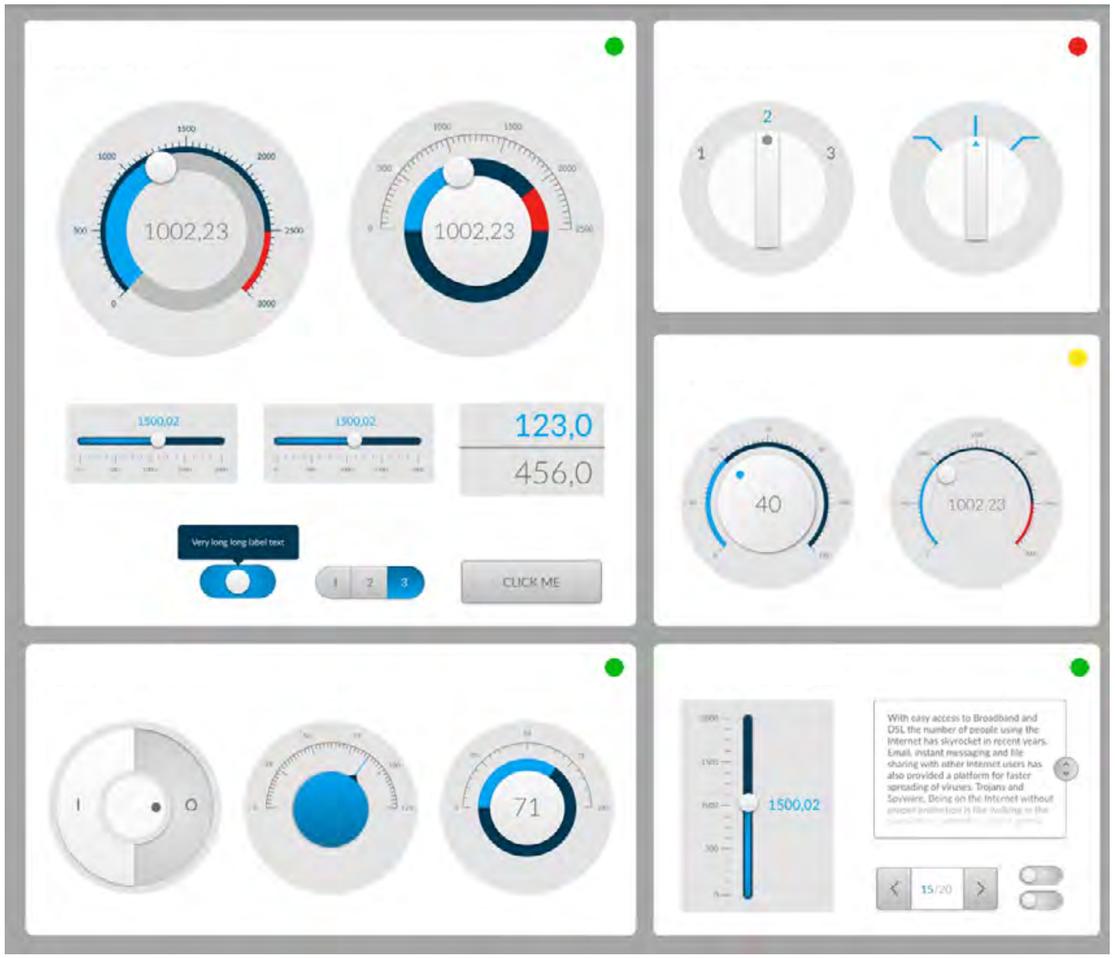
Studio

Premium HMI Studio
A unique development tool to realize HMI projects for Windows CE and Windows 32/64 operating systems on ARM and x86 hardware platforms

→ **Object-oriented programming** to drastically reduce use of code in project development, thus saving time not only in designing but also in project debugging and maintenance
→ **Ergonomic** and highly configurable **development tool** (floating and traditional windows, shortcuts and configuration pop-ups) to fully adapt to every kind of requirement

→ **Wizard for project quick development** (templates, automatic creation of project pages, title headings, navigation keys, alarm model and Data Logger model)
→ Project explorer with **hierarchical tree view of resources** (selection of multiple objects and single components of a group, copy/paste function support)
→ Support of **layer programming** with layer visibility management (configured objects of the various synoptics can be attributed to different layers)

→ **Distributed project planning** with support of "**Father project / Child project**" philosophy which dynamically links and integrates decentralised projects (the Father project includes all the resources of the Child project as if they were its own)
→ Export and import of variables, languages and translations, alarms and logs in .CSV format
→ Wide **graphic symbols library** (also with integrated animation logic), organised in categories with immediate display of preview and Drag&Drop in synoptics. Possibility to create new symbols and new categories.



Latest generation graphic user interface

Premium HMI offers the most advanced graphic technologies based on XAML standards and it is the only visualization solution supporting XAML vector graphics also on Windows CE operating system.

→ Premium HMI introduces a **new 16 million colors graphic rendering engine** supporting XAML advanced graphic technologies

→ Sophisticated management of **transparency and shading effects**

→ **Automatic re-Dimensioning of screens** for devices with different graphic resolutions; this feature of Premium HMI allows existing projects to be easily reused on different systems regardless of the graphic resolution of the display

→ **Rich gallery of vector graphic objects** (buttons, switches, analogue displays, sliders, etc.) to realise unprecedented user interface projects

→ Complete set of **graphic animations** (including movement of objects along definable routes)

→ **«Alias» support and inheritance of symbols** with definition of public symbols and automatic propagation of modifications from parent object to child object

→ Integrated support for multi-monitor systems

Recognition of pointing gestures

Support of Multitouch gestures for an intuitive interaction with the HMI project

→ Scroll ↕

→ Flick ↔

→ Dual Touch: simultaneous touch of two different command objects

→ **Objects drag & drop on Win 32/64 runtime**

Scalability

Premium HMI offers a unique development environment to realise the user interface of all ASEM HMI solutions based on ARM Cortex and x86 architectures with Windows CE and Windows 32/64 operating systems

→ Premium HMI allows the company to keep just one software platform to meet all visualization needs, from the simplest projects to more demanding supervision applications, thus saving time in learning, updating and personnel training

Connectivity and communication

Premium HMI has a complete communication drivers library for the most used PLCs on the market

→ Specific **wizards** allow the import and automatic configuration of **project Variables** (Tags) directly from the PLC project, reducing configuration time and errors

→ Premium HMI 5 integrates **OPC UA Client** and **OPC DA Client** technology (the product meets the certification criteria established by the OPC Foundation)

→ Automatic tag import from CODESYS Workbench for a better integration of control and visualization environments

→ VBA interface for dynamic control of communication parameters (in runtime)

Premium HMI also provides:

→ High performance and reactivity of controls to meet the most demanding requirements of machine manufacturers that need **fast data updating and a prompt dispatch of commands** to actuators

→ Support for **multi-protocol** interfacing with data transfer function (**gateway**) between communication channels

→ Real-Time I/O ODBC Link provides connectivity towards company's information systems. Each variable (Tag) has the reading-writing connectivity to an **external relational DB**. Therefore the Real-Time DB of the project can be shared automatically (partially or entirely) on a DB table, allowing sharing of plant's real-time data with the company's ERP

→ Availability of normalisers for the application of **non-linear transformations** to the variables

Networking

Premium HMI 5 has sophisticated Networking technology able to connect different HMI stations via EtherNet with multilevel Client/Server architecture

→ The Client/Server architectures are supported by integrated functionalities that allow online distribution of both dynamic information and projects

→ Local execution of Client projects works by loading the project from servers

→ Efficiency and performance are guaranteed by the "**event-driven**" **architecture** for data synchronisation

→ The **server stations** can be based indifferently on **Windows CE or Windows 32/64**

Openness and flexibility

Premium HMI is based on XML, ODBC, OPC, VBA, TCP/ IP and SQL standard technologies, integrated in the platform to guarantee easy access and data transparency

→ Projects are stored in XML format, which can be edited even with external Editors

→ Support of data sharing on shared memory

→ Data storage management on relational database (MS SQL Server, Oracle, MySQL, MS Access, SQL, etc.)

→ Native support of Microsoft Visual Source Safe, a tool allowing online management of projects which is used by development teams to guarantee security, multi-users, changes traceability, maintenance and recovery of project versions

Trend & Data Analysis

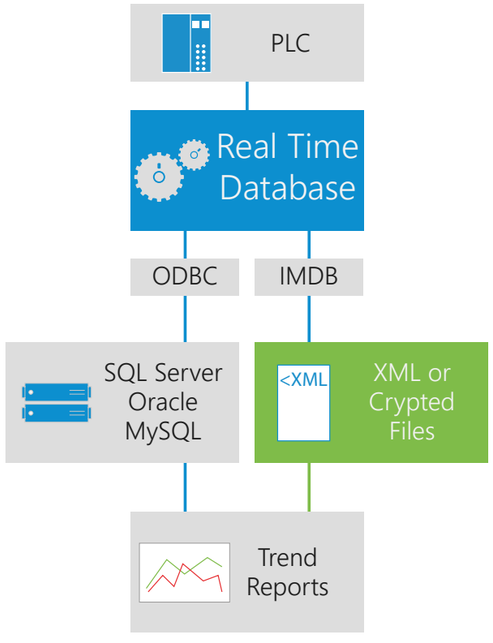
Data logger, Trends and Data Analysis - Traceability of data and historical archives

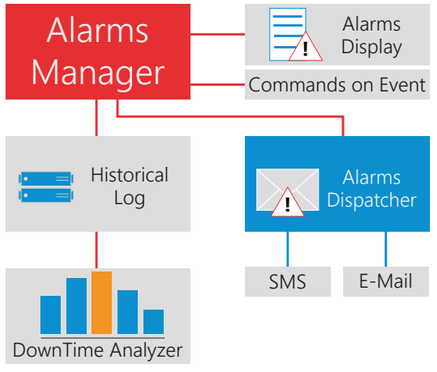
The Data Logger is the main tool for process data recording.
In addition Premium HMI offers sophisticated tools such as Trends and Data Analysis objects to analyse and represent logged data
→ Simple configuration of process data sampling options
→ Data can be recorded by frequency (time), or at event or variation (with dead band)
→ Data storage on Database and text file both in local and remote

→ **Trends** are graphic objects representing curves regarding the tendency of process data
→ Trends can be either dynamic or historical and have multiple features to represent graphically value. They are directly linked to Data Loggers and allow you to represent data by time period or other types of filters, zooms, pen selection, logarithmic scale, average value, compressed representation of the whole graph on one page, etc.

→ **Data Analysis objects** are more sophisticated than Trends and allow you to analyse and graphically represent logged data recorded by Data Loggers
→ Data Analysis objects execute quick analyses at pre-set periods, comparisons and overlapping of curves (analyses with sample curves or comparative analyses of different periods, difference between values of two different graphs, etc.)

Premium HMI provides also:
→ Traceability of variable modifications, with storage of the old and new value and modification's author
→ Visualization of events history, both from local database and network server (view of server HMI alarms from Client interface)
→ Data archive export in .CSV format





Recipes

Recipe manager

Production recipes allow you to manage archives containing operating parameters of the production process of different products
→ Production recipes are managed by objects with the same recording techniques as Data Loggers, both on Database and on text files
→ Selecting the desired product, it is possible to activate parameter values relating to the process variables
→ Possibility to have multiple recipe structures inserted inside one another to design complex modular machines
→ Simplified configuration with project structures for recipe use.

The object technology allows you to create a "recipe" object and, once the related variable has been assigned to it, a specific "wizard" automatically generates the recipe management window, with a fully customisable user interface (fonts, colours, etc.)
→ As an alternative, a simple grid viewer object allows you to manage recipe data traditionally
→ Recipe data can be exported and imported in .CSV format

Alarms

Alarm manager

Premium HMI provides maximum reliability in events management, guaranteeing continuous and immediate system/ machine monitoring, improving its efficiency and minimising production downtime
→ Alarms are managed according to **ISA S-18** standards, but they are entirely customizable with high-configurable objects and templates-oriented programming (threshold alarms, digital alarms, warning messages without recognition cycle, etc.)
→ Simple definition and configuration of repetitive alarms using templates
→ Fixed or variable triggering thresholds determine activation of the alarm, managing the four standard operating statuses (ON, OFF, ACK and RST) and the consequent representation of active alarms in visualization objects, managed by Windows or Banners with several filters (by time, area, priority, period, etc.) and the possibility to dynamically combine help and wizards on external files (CHM, HTML, PDF)
→ Library tools for the organic visualization of active alarms, alarms awaiting acknowledgement and the alarm log with the possibility to apply visualization filters for a simple search and analysis
→ The **Alarms Window** and the **Historic Log Window** are the tools to visualize active or stored alarms and can be inserted and configured as objects in any screen
→ Premium HMI introduces the possibility to select an active alarm and directly view its **history in the alarm window**

→ The Alarm Log automatically records all the events (Alarms, Driver Events or System Events) on the relational database (even on Windows CE) or on text files
→ Alarm Dispatcher to promptly send alarms or messages via **SMS** or **E-mail**; the notification is sent to the specific User or Group of Users and can be customised depending on timetables, calendars, work shifts, etc. SMS notification dispatcher based on SMPP protocol (dispatches SMSs via internet without modem).

Scheduler

Scheduler and Event generator
Scheduler objects offer maximum configurability of commands executed on a temporal base in Runtime
→ Premium HMI schedulers manage **time-based programming** of any control, with flexibly configurable timetables. The operator has full freedom to establish commands, events and periods
→ The schedulers are supported also by Windows CE and Web Client
→ "Event Objects" define lists of commands that can be flexibly configured
"**Event Objects**" drastically reduce the need to use code, executing command actions associated to events generated by variables (Tags) or by actions bound to command objects (e.g. buttons, menus, etc.)

Security

Security and standards
Premium HMI applications guarantee maximum level of safety and reliability in compliance with CFR21 part 11 standards
→ Users and Passwords management has been expressly designed to guarantee simple and integrated implementation of projects conforming with the severe **CFR21 part 11** standards of the American **FDA** (Food & Drug Administration)
→ Maximum protection of data and system access by managing criteria according to **1024** User levels and **16 access areas**
→ Data recording (Data Loggers, Events or any other data) is performed both on safe relational database (e.g. Ms SQL Server or Oracle) and in proprietary format (.DAT or .XML formatted text) encrypted with 128 bit encryption, to obtain recorded data that are visible only to Premium HMI controlled access features
→ Additional tools: electronic signature, control of tampering attempts, password expiration, automatic log-off and management of **Audit Trails**

Scripting

Scripting and integrated languages
Premium HMI integrates a powerful VBA Engine (both for Windows CE and for Windows 32/64), able to execute codes that are perfectly compatible with the VBA standard (Visual Basic for Application) and to use a wide range of API for the most different project features
→ Scripts can be executed as normal routines or "encapsulated" in objects in response to events (graphic objects, alarm objects, data loggers etc.)
→ Scripts support **multi-threading**, the simultaneous execution of different scripts.
Premium HMI provides also:
→ **VB.Net** syntax support and management of software components based on .Net technology (only on Windows 32/64)
→ VBA expression generator to edit **logic expressions** directly on objects instead of assigning variables
→ Support of sequential combinational language, typical of PLCs (Instructions List IL or AWL)
→ Openness to integration of ActiveX, OCX, DLL software components

Multilingual

Multi-language support
Each Premium HMI project can contain all the text strings in a virtually unlimited number of languages and with any Unicode character, even with UTF-16 code for Asiatic and Arab characters
→ Editing texts in different languages is facilitated by import/export tools.
Texts are managed in the project string table, compatible with Copy/Paste operations of Editors like Microsoft Excel
→ Any language can be changed and activated both in Editor and in Runtime modes
→ A specific language can be activated when a specific Audit Trail user logs on

Reports

Print reports
Premium HMI integrates a simple and flexible tool in the development environment to make multi-language printing reports
→ Possibility to fully customize printing pages with Copy/Paste operations of variables and objects from the project pages (even graphs like trends, plotters, etc.)
Premium HMI provides also:
→ Printing of objects with values which change dynamically over time
→ Printing of variables present in the Data Logger, both on the Database and in .CSV format
→ Printing on file, **printer** and creation of **PDF files**

Debug

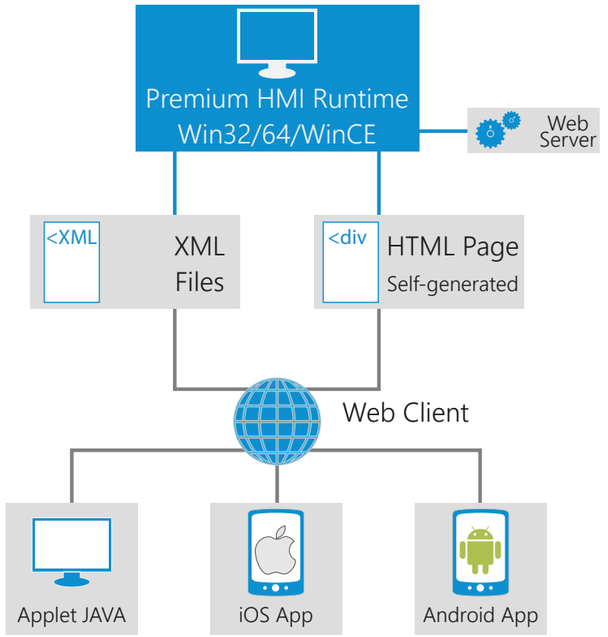
Debugging tools
Premium HMI has an integrated simulator to execute debugging without transferring the project in the target. The simulator allows communication with the protocols configured in the project
→ Powerful **online debugger** to analyse and simulate the project, both locally and remotely (even during execution)

→ Possibility of full project recovery from the target hardware device for a safe and protected modification of the password (with re-transmission of the modified project to the target device)
→ In case of multi-language projects, control/verification of non-translated text strings

Premium HMI provides also:
→ Verification and reporting of variables not used in the project (**Cross Reference**)
→ "Refactoring" tools for the automatic design error correction

Web Client

Support for Web Client remote control
Premium HMI offers the best Web Client technology with remote access independent from local operation
→ Remote control of projects with "**Premium HMI Mobile**", **free App** for iOS and Android devices (needs Premium HMI 3.0.1102 or later releases)
→ The Web Client with JAVA-based architecture allows the server and projects to be accessed via **Internet browser** from any platform and operating system



Premium **HMI Mobile**

Available on the App Store

ANDROID APP ON Google play

iOS

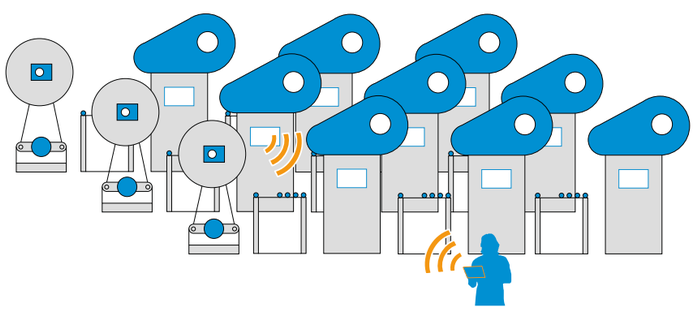
PREMIUM HMI mobile

Premium HMI Mobile is the app released by ASEM to view and interact with Premium HMI projects, running on Machine HMIs, via mobile devices (iOS and Android) connected to the enterprise Wi-Fi network and provides mobile and multitouch support to the HMI project running on Machine Operator Panels/Panel PCs.

Premium HMI Mobile requires Premium HMI "Advanced" Runtime licence and it is available for free on App Store and Google Play.

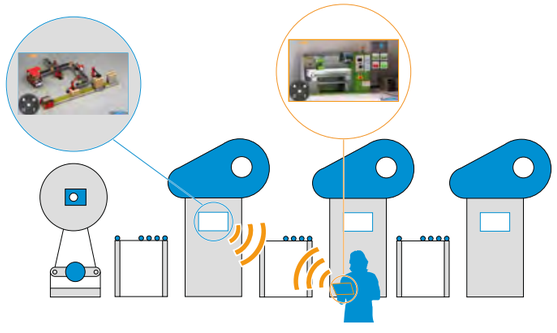
Benefits of
Premium HMI Mobile app

Better control in production lines
With Premium HMI Mobile, machinery supervision becomes more flexible and efficient. The user can control machines directly from the factory floor, even in large plants or applications with several production lines.



Independent project visualization
→ The native configuration of Premium HMI web server, allows you to independently manage projects on PHMI Mobile, while the local user can continue working on the machinery HMI.

→ Premium HMI Mobile manages the iOS/Android device screen resolution independently from the machine LCD resolution, resizing the pages according to the visualization needs of the mobile device user.

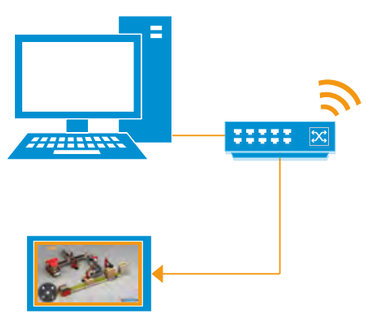


Security and users management
Premium HMI Mobile supports the same security and user management features of Premium HMI. The access to pages and commands can be controlled as any Premium HMI project. Whether the application has access protection, all Premium HMI Mobile sessions will be exclusively activated through access credentials.

Premium HMI Mobile
Configuration

1 Enable Premium HMI Mobile connectivity with Premium HMI Studio

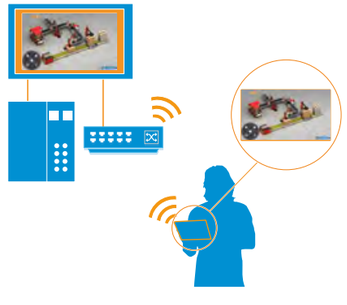
To run a project on Premium HMI Mobile, the user has to include the "System Variables" by right-clicking on the Variable database icon and selecting "Add System Variables".



2 Connect the mobile device to the wireless infrastructure network

When the project is transferred to the Panel PC / HMI, the device must be connected to the wireless network which will be used by the iOS/Android device[1].

1. Premium HMI Mobile performances may vary according to wireless signal strenght and to the processor of the device running Premium HMI Runtime "Advanced" licence.

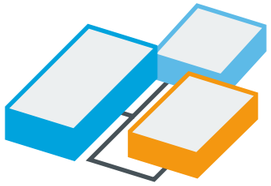


3 Connect the mobile device to the IPC / HMI

Once the installation of "Premium HMI Mobile" on the iOS/Android device is completed, connect it to the wireless network, insert access credentials on the home screen (IP address, screen name, username, password and resolution desired) and click on the connection button to start remotely interacting with the project.

HMI Panels

ASEM System Manager



ASEM SYSTEM MANAGER
ASEM System Manager is a set of utilities developed to improve the usage of ASEM WinCE-based ARM and x86 platforms.
Installed directly in production, ASEM System Manager is accessible from the OS control panel and includes a series of features that allow to backup the whole system or to selectively backup the applications, to manage the screen saver and to implement the antialiasing rendering for a better characters visualization.
ASEM System Manager can be installed also on existing systems.

Clone, Backup and Restore
The Clone function allows to make an exact copy of the source system, including the image of the OS (ARM platforms).
Selective Backup allows to backup only specific and selected files and applications settings.
The backup is saved in a single file with ".ASR" (ASEM System Repository) extension.
With the Restore feature it is possible to retrieve the backup by selecting the files to be restored.

OS update for ARM systems
The ASEM System Manager allows to update the operating system without reinstalling all the applications.
Before any update, a temporary backup of all installed ASEM application and the related settings is necessary. Once the update is completed, the backup is automatically restored in a safe and open way.
On the download area of the ASEM website there is a database with all OS image versions in ".ASR" format.

Screen Saver
The Screen Saver function allows to reduce the display brightness or to switch off the display after a period of inactivity when systems are powered but not used in a continuous way by the operator. This feature extends the lifetime of the displays.

Kiosk Mode
The utility enables the execution of Premium HMI Runtime in "kiosk" mode without showing any detail of the operating system. The kiosk mode is very useful when you need the HMI application to be launched with no evidence of the operating system presence.

Antialiasing
Antialiasing is a technique for minimizing the character edges compared with their matrix enabling a better character visualization.
The utility allows to choose between two different representation, according to users preferences.

Scrollbar
The utility lets you change the operating system scroll bars dimension. Some of these controls are in fact used in the HMI applications so you can freely adapt the size.

System reboot
The utility allows you to reboot the device without acting on the power supply.

eMMC Usage
The utility provides useful information about the actual use of the eMMC memory along with an indication of "lifetime" of the support expressed in expected duration time.

Touch Buzzer
The utility allows you to activate the sound feedback of touch activation.

Language Settings
The utility allows you to easily install the font support for non-European languages in the HMI applications.

System compatibility						
Hardware platform (WinCE)	**Preinstalled**	**Post sales installation**	**Backup/Restore**	**Backup/Restore with OS clone**	**Font antialiasing setting**	**Screen Saver**
ARM	✓	✓	✓	✓	✓	✓
x86	-	✓	✓	-	-	-
RMxx	-	✓	✓	✓	✓	-
Hardware platform (WinCE)	**Touch Buzzer**	**eMMC Usage**	**Kiosk Mode**	**Language Settings**	**Scrollbar**	**System Reboot**
ARM	✓	✓	✓	✓	✓	✓
x86	-	-	-	✓	✓	-
RMxx	-	✓	-	✓	✓	-

HMI Solutions Overview

HMI Solutions are available with a wide range of families based on ARM Cortex and x86 architectures and include the remote assistance software UBIQUITY and the visualization software Premium HMI.

→ **HMI25**
(ARM Cortex A8, 1 GHz)
→ **HMI30**
(ARM Cortex A8, 1 GHz)
→ **HMI40**
(ARM Cortex A9, 1 GHz multicore)
→ **HMI2150**
(Intel® Celeron J1900 quad core 2,0 GHz)
→ **HMI2200**
(Intel® Celeron J1900 quad core 2,0 GHz)

x86 based solutions have expansion slots that allow the integration of ASEM industrial networking cards supporting a wide range of fieldbuses.

UBIQUITY

PREMIUM HMI 5

x86
Win 32/64

ARM Cortex A8, A9
Win CE

HMI25

Entry level ARM based visualization systems

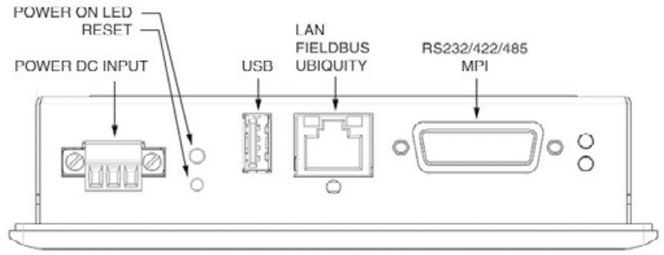
The fanless HMI of the HMI25 family are the systems with the smallest LCD sizes of the ASEM portfolio and they are based on the ARM Cortex A8 (i.MX535) 1GHz processor. They are supplied with Windows Embedded Compact 7 Pro operating system and integrates the numerous and advanced functionalities of Premium HMI visualization software (Basic or Advanced version) and ASEM UBIQUITY remote assistance software. They also include ASEM System Manager, a software utility suite for the management of the panel. The HMI25 family is available with 16 million color LED Backlight TFT LCDs, 4.3" and 7" in Wide aspect ratio, with aluminium or aluminium TrueFlat front panels with 4 wires resistive touchscreen. The "all in one" motherboard provides one EtherNet 100Mbps port, one USB 2.0 port and one serial RS232/422/485 interface with rear external access, 1 GB DDR3 RAM, 256MB Nand-Flash for the operating system, 4GB pseudo-SLC eMMC memory to save and manage HMI project data. HMI25 systems have a 24 VDC power supply input.

Highlights

- → Premium HMI visualization software
- → UBIQUITY remote assistance software providing remote access to the system
- → ARM Cortex A8 processor
- → Operating temperature 0°C÷+50°C
- → 4.3" and 7" LCDs in Wide aspect ratio
- → CE, cULus LISTED (508) certifications

Gallery

I/O shield



Technical data

	HMI25	HMI25-TF
HMI Software	PREMIUM HMI 5 BASIC | ADVANCED	
REMOTE ASSISTANCE SW	ASEM UBIQUITY PRO	
O.S. INSTALLED	Windows Embedded Compact 7 Pro with Datalight Reliance Nitro file system	
PROCESSOR	ARM Cortex A8 1GHz i.MX535	
DRAM / SYSTEM MEMORY	1 GB DDR3 soldered	
MASS STORAGE	256 MB NAND-FLASH	
	4 GB eMMC pseudo-SLC	
LED backlight TFT LCD	4.3" W - 480x272 7" W- 800x480	
TOUCHSCREEN	Resistive 4 wires	
FRONT PANEL	Aluminium	True Flat Aluminium
PROTECTION DEGREE	IP66 front panel	
INTERFACES	1 x LAN 100Mbps	
	1 x USB 2.0 rear (Type-A)	
	1 x RS232/422/485 with MPI support (187Kb/s)	
POWER SUPPLY INPUT	24VDC	
OPERATING TEMPERATURE	0°- 50°C	
APPROVALS	CE, cULus LISTED (508)	

HMI30

ARM based visualization systems

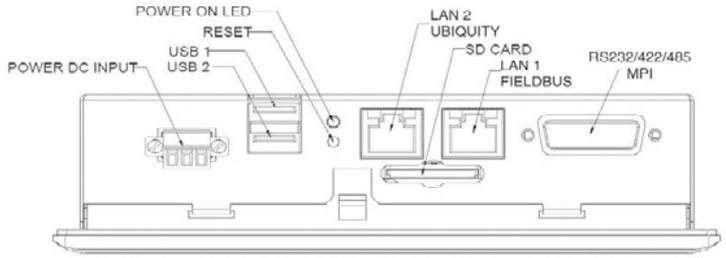
The fanless HMI family HMI30 is based on the ARM Cortex A8 (i.MX535) 1GHz processor. It is supplied with Windows Embedded Compact 7 Pro operating system and integrates the numerous and advanced functionalities of Premium HMI visualization software (Basic or Advanced version) and ASEM UBIQUITY remote assistance software. They also include ASEM System Manager, a software utility suite for the management of the panel. The HMI30 family is available with 16 million color LED Backlight TFT LCDs from 5.7" to 15.6", in 4:3 and Wide aspect ratio, with aluminium or aluminium TrueFlat front panels with 4 or 5 wires resistive touchscreen. All versions with Wide LCD are also available with aluminium and glass TrueFlat Capacitive front panel, with projected capacitive touchscreen. The "all in one" motherboard provides one EtherNet 10/100Mbps port, one EtherNet 100Mbps port, two USB 2.0 ports, one serial RS232/422/485 interface with rear access, 1 GB DDR3 RAM, 256MB Nand-Flash for the operating system and the runtimes, 4GB pseudo-SLC eMMC memory to save and manage the HMI projects data and a removable SDHC memory slot. HMI30 systems have a 24 VDC power supply input and optionally an integrated MicroUPS based on supercapacitors.

Highlights

- → Premium HMI visualization software
- → UBIQUITY remote assistance software providing remote access to the system
- → MicroUPS (optional)
- → ARM Cortex A8 processor
- → Operating temperature 0°C÷+50°C
- → 5.7", 8.4", 10.4", 12.1" and 15" LCDs in 4:3 aspect ratio, 7", 10.1", 12.1" and 15.6" LCDs in Wide aspect ratio
- → Available with aluminium and glass TrueFlat Capacitive front panel, with projected capacitive touchscreen (only for Wide LCD formats)
- → CE, cULus LISTED (508) certifications
- → ATEX area 2/22 certification

Gallery

I/O shield



Technical data

	HMI30	HMI30-TF	HMI30-TFC
HMI Software	PREMIUM HMI 5 BASIC | ADVANCED		
REMOTE ASSISTANCE SW	ASEM UBIQUITY PRO		
O.S. INSTALLED	Windows Embedded Compact 7 Pro with Datalight Reliance Nitro file system		
PROCESSOR	ARM Cortex A8 1GHz i.MX535		
DRAM / SYSTEM MEMORY	1 GB DDR3 soldered		
MASS STORAGE	256 MB NAND-FLASH		
	4 GB eMMC pseudo-SLC		
	1 x slot SD/SDHC v 2.0		
LED backlight TFT LCD	5.7" - 640x480 7" W - 800x480 8.4" - 800x600 10.1" W - 1280x800 10.4" - 800x600 12.1" - 800x600 12.1" - 1024x768 12.1" W- 1280x800 15.0" - 1024x768 15.6" W - 1366x768		7" W - 800x480 10.1" W - 1280x800 12.1" W- 1280x800 15.6" W - 1366x768
TOUCHSCREEN	Resistive 4 / 5 wires		P-CAP projected capacitive
FRONT PANEL	Aluminium	True Flat Aluminium	True Flat Aluminium
PROTECTION DEGREE	IP66 front panel		
INTERFACES	1 x LAN 100 Mbps 1 x LAN 10/100 Mbps		
	2 x USB 2.0 rear (Type-A)		
	1 x RS232/422/485 with MPI support (187Kb/s)		
POWER SUPPLY INPUT	24VDC / MicroUPS (optional)		
OPERATING TEMPERATURE	0°- 50°C		
APPROVALS	CE, cULus LISTED (508), ATEX zone 22, II 3 D	CE, cULus LISTED (508), ATEX zone 2/22, II 3 G D	

HMI40

ARM multicore based visualization systems

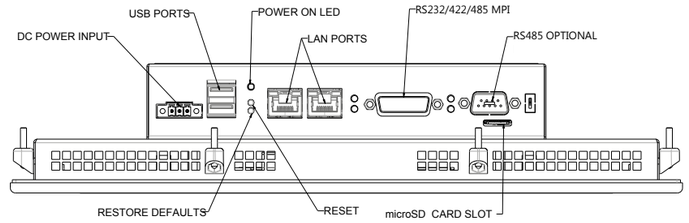
The fanless HMI family HMI40 is based on the ARM Cortex A9 (i.MX6 DualLite) 1GHz multi core processor.
They are supplied with Windows Embedded Compact 7 Pro operating system and integrates the numerous and advanced functionalities of Premium HMI visualization software (Basic or Advanced version) and ASEM UBIQUITY remote assistance software. They also include ASEM System Manager, a software utility suite for the management of the panel.
The HMI40 family is available with 16 million color LED Backlight TFT LCDs from 7" to 15.6", in 4:3 and Wide aspect ratio, with aluminium or aluminium TrueFlat front panels with 4 or 5 wires resistive touchscreen. All versions with Wide LCD are also available with aluminium and glass TrueFlat Multitouch front panel, with projected capacitive touchscreen.
The "all in one" motherboard provides two EtherNet 10/100/1000Mbps ports, two USB 2.0 ports, a serial RS232/422/485 interface with rear access, 1 GB DDR3 RAM, 4GB Pseudo-SLC eMMC memory and a slot for a removable MicroSD. Optionally, an additional RS485 serial port with rear access is available.
HMI40 systems have an isolated 24 VDC power supply input.

Highlights

- → Premium HMI visualization software
- → UBIQUITY remote assistance software providing remote access to the system
- → ARM Cortex A9 dual core processor
- → Operating temperature 0°C÷+50°C
- → 8.4", 10.4", 12.1" and 15" LCDs in 4:3 aspect ratio, 7", 10.1", 12.1" and 15.6" LCDs in Wide aspect ratio
- → CE, cULus LISTED (61010) certifications
- → ATEX area 2/22 certification

Gallery

I/O shield



Technical data

	HMI40	HMI40-TF	HMI40-TFM
HMI Software	PREMIUM HMI 5 BASIC | ADVANCED		
REMOTE ASSISTANCE SW	ASEM UBIQUITY PRO		
O.S. INSTALLED	Windows Embedded Compact 7 Pro with Datalight Reliance Nitro file system		
PROCESSOR	ARM Cortex A9 1GHz i.MX6 DualLite		
DRAM / SYSTEM MEMORY	1 GB DDR3 soldered on board		
MASS STORAGE	4 GB eMMC pseudo-SLC		
	1x microSD slot on board with external access		
LED backlight TFT LCD	7" W - 800x480 8.4" - 800x600 10.1" W - 1280x800 10.4" - 800x600 12.1" - 800x600 12.1" - 1024x768 12.1" W- 1280x800 15.0" - 1024x768 15.6" W - 1366x768		7" W - 800x480 10.1" W - 1280x800 12.1" W- 1280x800 15.6" W - 1366x768
TOUCHSCREEN	Resistive 4 / 5 wires		P-CAP Multitouch
FRONT PANEL	Aluminium	True Flat Aluminium	True Flat Aluminium
PROTECTION DEGREE	IP66, Enclosure type 4x - front		
INTERFACES	2 x LAN 10/100/1000 Mbps		
	2 x USB 2.0 rear (Type-A)		
	1 x RS232/422/485 (DB15M) with MPI support (187Kb/s)		
	1 x RS485 isolated (DB9M) with terminations (optional)		
POWER SUPPLY INPUT	24VDC isolated		
	MicroUPS removable (optional)		
OPERATING TEMPERATURE	0°- 50°C		
APPROVALS	CE, cULus LISTED (61010) pending, ATEX zone 22, II 3 D	CE, cULus LISTED (61010) pending, ATEX zone 2/22, II 3 G D	

HMI2150 [new]

Entry level Intel® Bay Trail™ based visualization systems

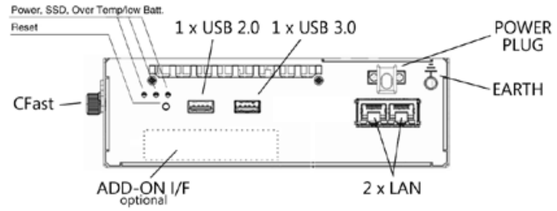
The fanless HMI family HMI2150 is an entry-level solution, available with small LCD sizes, that offers an excellent performance/ price ratio. It is based on the Celeron J1900 2GHz quad core processor of the Intel® Bay Trail™ System On Chip (SoC) platform.
It is supplied with Windows Embedded Standard 7E or 7P operating system and integrates the numerous and advanced functionalities of Premium HMI visualization software (Basic, Pro or Advanced version) and ASEM UBIQUITY remote assistance software.
The HMI2150 family is available with 16 million color LED Backlight TFT LCDs from 6.5" to 15.6", in 4:3 and Wide aspect ratio, with aluminium or aluminium TrueFlat front panels with 4 or 5 wires resistive touchscreen and an additional USB 2.0 port. All versions with Wide LCD are also available with aluminium and glass TrueFlat Multitouch front panel, with projected capacitive touchscreen.
The "all in one" motherboard provides two EtherNet 10/100/1000Mbps ports that support "Jumbo Frame" and "Wake on Lan" functionalities, a USB 3.0 port, a USB 2.0 port and a SATA II CFast slot with rear external access, an mSATA connector for the installation of a SATA II SSD, up to 4 GB RAM with one DDR3 SODIMM module and an internal connector for the installation of additional serial and USB interfaces.
HMI2150 systems are provided with 24 VDC power supply with galvanic isolation.

Highlights

- → Premium HMI visualization software
- → UBIQUITY remote assistance software providing remote access to the system
- → Intel® Bay Trail™ SoC platform
- → Operating temperature 0°C÷+50°C
- → 6.5", 8.4", 10.4", 12.1" and 15" LCDs in 4:3 aspect ratio, 7", 10.1", 12.1" and 15.6" LCDs in Wide aspect ratio
- → CE, cULus LISTED (61010) certifications

Gallery

I/O shield



Technical data

	HMI2150 Win32	HMI2150-TF Win32	HMI2150-TFM Win32
HMI Software	PREMIUM HMI 5 BASIC / PRO / ADVANCED		
REMOTE ASSISTANCE SW	ASEM UBIQUITY PRO		
O.S. INSTALLED	Microsoft Windows Embedded Standard 7E		
	Microsoft Windows Embedded Standard 7P		
LED backlight TFT LCD	6.5" - 640x480 7" W - 800x480 8.4" - 800x600 10.1" W - 1280x800 10.4" - 800x600 12.1" - 800x600 12.1" - 1024x768 12.1" W - 1280x800 15.0" - 1024x768 15.6" W - 1366x768		7" W - 800x480 10.1" W - 1280x800 12.1" W - 1280x800 15.6" W - 1366x768
TOUCHSCREEN	Resistive 5 wires	Resistive 5 wires	P-CAP Multitouch
	GFG (optional)		
FRONT PANEL	Aluminium	True Flat Aluminium	True Flat Aluminium
PROTECTION GRADE	IP66 - front panel		
PROCESSOR	Intel® Celeron J1900 2.00Ghz a 64 bit, 4 cores / 4 threads, 2MB L2 cache, soldered		
VIDEO CONTROLLER	Intel® HD Graphics integrated in microprocessor, 688MHz Clock 854MHz Turbo, LVDS 8bit/color digital interface		
SYSTEM MEMORY - RAM	2GB or 4GB (1 x SODIMM DDR3 module)		
MASS STORAGE	32GB / 64GB SSD mSATA SATA II MLC		
LAN	2 x LAN 10/100/1000Mbps (2 x Intel® I210)		
USB	1 x USB 3.0 rear (Type-A)		1 x USB 3.0 rear (Type-A)
	1 x USB 2.0 rear (Type-A)		1 x USB 2.0 rear (Type-A)
	1 x USB 2.0 front (Type-A)		-
ADD-ON INTERFACES (optional, max 1)	1 x RS232/422/485 (DB15M)+ 1 x USB 2.0 (Type-A)		
	1 x RS232/422/485 (DB15M) isolated + 1 x USB 2.0 (Type-A)		
	2 x RS232 (DB9M)		
	1 x USB 2.0 (Type-A)		
POWER SUPPLY INPUT	24VDC isolated		
OPERATING TEMPERATURE	0°- 50°C		
APPROVALS	CE, cULus LISTED (61010) pending		

HMI2200

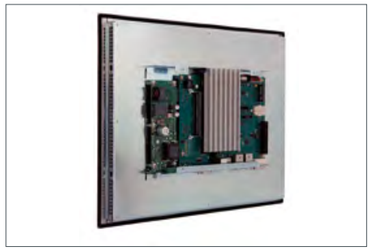
Intel® Bay Trail™ based visualization systems

The fanless HMI family HMI2200 is based on the Celeron J1900 2GHz quad core processor of the Intel® Bay Trail™ System On Chip (SoC) platform.
It is supplied with Windows Embedded Standard 7E or 7P operating system and integrates the numerous and advanced functionalities of Premium HMI visualization software (Basic, Pro or Advanced version) and ASEM UBIQUITY remote assistance software.
The HMI2200 family is available with 16 million color LED Backlight TFT LCDs from 10.1" to 21.5", in 4:3, 5:4 and Wide aspect ratio, with aluminium or aluminium TrueFlat front panels with 5 wires resistive touchscreen and an additional USB 2.0 port. All versions with Wide LCD are also available with aluminium and glass TrueFlat Multitouch front panel, with projected capacitive touchscreen.
The "all in one" motherboard provides two EtherNet 10/100/1000Mbps ports that support "Jumbo Frame" and "Wake on Lan" functionalities, a USB 3.0 port, two USB 2.0 ports, a serial RS232 interface, a DVI-I (DVI-D + VGA) video output and a SATA II CFast slot with rear access, an mSATA connector for the installation of a SATA II SSD, up to 8 GB RAM with one DDR3 SODIMM module and an internal connector for the installation of additional serial and USB interfaces.
HMI2200 systems have an isolated 24 VDC power supply input and optionally an integrated UPS with external battery pack.

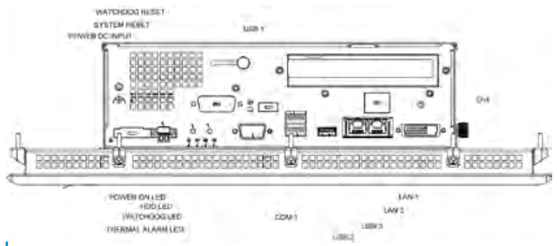
Highlights

- → Premium HMI visualization software
- → UBIQUITY remote assistance software providing remote access to the system
- → UPS (optional)
- → Intel® Bay Trail™ SoC platform
- → Operating temperature 0°C÷+50°C
- → 10.4", 12.1" and 15" LCDs in 4:3 aspect ratio, 17" and 19" LCDs in 5:4 aspect ratio, 10.1", 12.1", 15.6", 18.5" and 21.5" LCDs in Wide aspect ratio
- → CE, cULus LISTED (508) certifications

Gallery



I/O shield



Technical data

	HMI2200 Win32	HMI2200-TF Win32	HMI2200-TFM Win32
HMI Software	PREMIUM HMI 5 BASIC / PRO / ADVANCED		
REMOTE ASSISTANCE SW	ASEM UBIQUITY PRO		
O.S. INSTALLED	Microsoft Windows Embedded Standard 7E		
	Microsoft Windows Embedded Standard 7P		
LED backlight TFT LCD	10.1" W - 1290x800 (SL) 10.4" - 800x600 12.1" - 800x600 12.1" - 1024x768 12.1" W - 1280x800 15.0" - 1024x768 15.6" W - 1366x768 15.6" W - 1920x1080 17" - 1280x1024 18.5" W - 1366x768 18.5" W - 1920x1080 19" - 1280x1024 21.5" W - 1920x1080		10.1" W - 1290x800 (SL) 12.1" W - 1280x800 15.6" W - 1366x768 15.6" W - 1920x1080 18.5" W - 1366x768 18.5" W - 1920x1080 21.5" W - 1920x1080
TOUCHSCREEN	Resistive 5 wires GFG (optional)	Resistive 5 wires	P-CAP Multitouch
FRONT PANEL	Aluminium	True Flat Aluminium	True Flat Aluminium
PROTECTION GRADE	IP66 - front panel		
PROCESSOR	Intel® Celeron J1900 2.00Ghz a 64 bit, 4 cores / 4 threads, 2MB L2 cache, soldered		
VIDEO CONTROLLER	Intel® HD Graphics integrated in microprocessor, 688MHz Clock 854MHz Turbo, LVDS 8bit/color digital interface		
SYSTEM MEMORY - RAM	2GB or 4GB (1 x SODIMM DDR3 module)		
MASS STORAGE	32GB / 64GB SSD mSATA SATA II MLC		
LAN	2 x LAN 10/100/1000Mbps (2 x Intel® I210)		
USB	1 x USB 3.0 rear (Type-A)		1 x USB 3.0 rear (Type-A)
	2 x USB 2.0 rear (Type-A)		2 x USB 2.0 rear (Type-A)
	1 x USB 2.0 front (Type-A)		-
SERIAL	1 x RS232 (DB9M)		
VIDEO OUTPUT	1 x DVI-I (DVI-D + VGA with adapter)		
ADD-ON INTERFACES (optional, max 1 S0)	1 x RS232/422/485 (DB15M)+ 1 x USB 2.0 (Type-A)		
	1 x RS232/422/485 (DB15M) isolated + 1 x USB 2.0 (Type-A)		
POWER SUPPLY INPUT	24VDC isolated		
	UPS (optional)		
OPERATING TEMPERATURE	0°- 50°C		
APPROVALS	CE, cULus LISTED (508)		

3. **PAC** Solutions

PAC - Programmable Automation Controller

The new frontier of control systems

Industrial automation is moving away from embedded controls, programmable controllers and industrial computers towards a new architecture called PAC, Programmable Automation Controller.

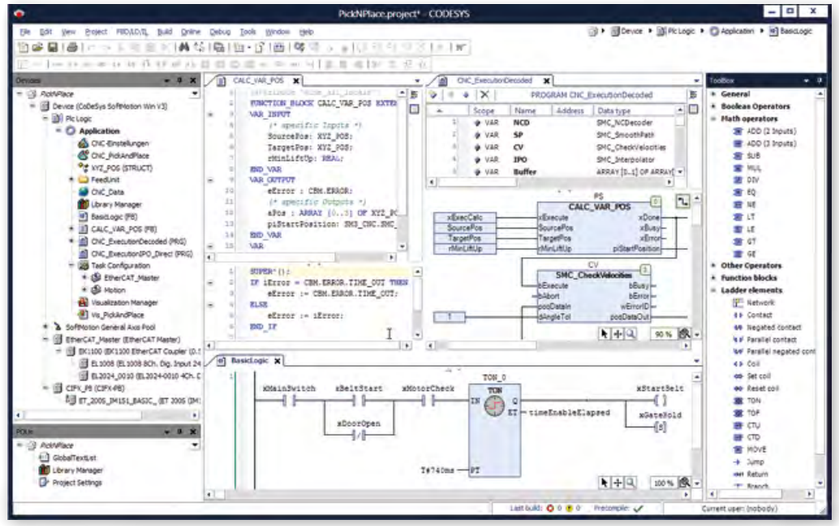
The term **PAC - Programmable Automation Controller** - indicates compact or hybrid modular controllers that combine the features and capabilities of a control system based on PC architecture with those of a typical PLC - programmable logic controller.
The basic difference between a PAC and a PLC is the **software component**, which provides an intuitive graphic programming language, similar to a flow chart, but linked to **real-time operating systems** and with the possibility to program reconfigurable hardware.
The control programs are generally developed with generic software tools that allow to design the program so that it can be shared with several computers, processors, HMI terminals or other components of the control system architecture.
PACs are especially suited for communications that leverage standard protocols and network interfaces. They are usually enclosed in chassis not bigger than a common PLC.

This space provides room for an advanced microprocessor, several storage modules (both volatile and permanent), axis control modules and different types of communication interfaces. The on-board intelligence is supplied with the tools of a typical real-time operating system, capable of offering reduced latency times and a determinism suitable to fulfil critical tasks, and with an advanced application software usually implemented on PC development platforms and then "downloaded" to the device.

In a competitive context where machine manufacturers are compelled to renew their automation solutions by integrating **standard, open and flexible technological structures** that quickly respond to the growing demands of customization, delivery time reduction and lower costs, it becomes suitable for producers to consider and evaluate the possibility to develop control functions with PAC systems, with **enhanced scalability in calculation power, wide availability of communication interfaces for industrial networking, data storage and archiving functions, making use of several storage modules** (both volatile and permanent).

The most advanced PACs support also graphic video interfaces, optimising automation costs by integrating control and visualization activities into a single system.
PACs with high-performance processors further optimize automation costs by integrating Motion Logic (SoftMotion) and Control Logic (SoftPLC) into one integrated PLC-CNC control system.

ASEM
PAC Solutions



ASEM logic controllers base their PLC functionalities on the consolidated and widespread CODESYS SoftPLC of the German 3S, with a highly efficient implementation of version 3.5 which guarantees the deterministic execution of PLC control logic with WinCE and Win 32 operating systems. It transfers projects between various operating systems and hardware platforms without the need to change the project code. Like all traditional PLCs, CODESYS platform also has a development environment, CODESYS Engineering, to realise projects which are then executed by the runtime. CODESYS provides availability of the most used industrial fieldbuses in master mode (such as CANopen, Profibus, Profinet, EtherNet/IP, EtherCAT, Modbus RTU and Modbus TCP) to communicate with field devices.

CODESYS - The number 1 control tool in the world

With over a million installations, CODESYS by 3S-Smart Software Solutions has become a global standard in Industrial Automation, being the number one platform (excluding Multinational PLC manufacturers) in the world.

CODESYS

CODESYS

CODESYS
Highlights

CODESYS

Flexible PLC and Motion logic control in a single development tool

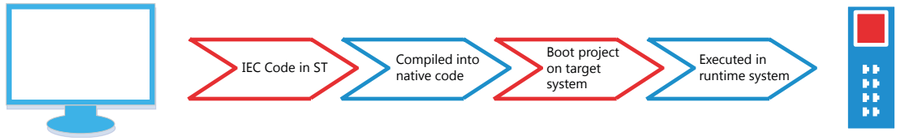
→ Perfect integration of auxiliary components for automation engineering:
  → SoftPLC
  → SoftMotion
  → CNC
→ CODESYS SoftMotion covers all motion functions, from motion management of single axis to 3D CNC interpolations
→ The possibilities offered by the standard IEC 61131-3 give no limits to the complexity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

Transferability of projects to different platforms

→ A project can be used on different platforms and operating systems without the need to modify or change settings in the development tool

5 different programming languages in one flexible development tool

→ **Text editor:**
  → **IL** (Instructions List) similar to the Assembler programming language
  → **ST** (Structured Test) similar to programming in PASCAL or C
→ **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
  → **SFC** (Sequential Function Chart) suitable to program sequential processes



> CODESYS integrated property compiler functioning

Performance guaranteed with the proprietary compiler integrated in the development tool

→ Proprietary compilers integrated in the development environment transform the code created by CODESYS into native code for machinery (binary code) then downloaded on the controller
  → The compiler does not weigh on the machinery hardware, lightening the load and therefore optimising controller performances
  → Performance is much improved compared to controllers executing an interpreted code

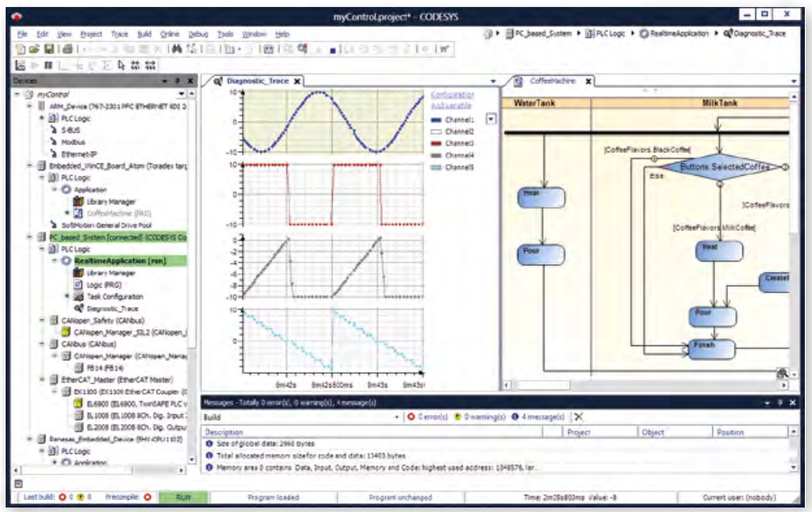
High potential and usability for the effective implementation of complex automation projects

→ Fast machine code for different devices and complex applications, generated by compilers widely tested in industrial environments
→ Scalable function - usable both on simple configurators and potent auxiliary tools for the static analysis of the code or integrated UML diagrams
→ Modular programming philosophy orientated to the repeated use of functional blocks in the libraries

Several debugging functions help in writing and maintaining applications

→ Breakpoint
→ Force
→ Trace
→ Debugging
→ Online change
→ Multi application
→ Recipe
→ Symbol management
→ Multi-user operation

CODESYS
The components



Engineering

CODESYS advanced development tool includes different programming languages for the development of applications in a single expandable platform

→ Modern development platform with editor and debugger compliant with **IEC 61131-3** standards.

→ Integrated compilers transform the code created by CODESYS into **native code** for machinery (binary code) then downloaded on the controller, thus enhancing performance of the system for industrial applications. Various ASEM CPU are supported, from ARM Cortex A8 platforms to different x86 processors.

→ Once online, CODESYS offers debugging features such as monitoring/writing/forcing of variables by setting single passages of breakpoints/performing or recording variable values online in the controller in a ring buffer (Sampling Trace)

→ Availability of additional tools for easier high-level programming language.

→ Modular expandability with specific plug-ins.

Runtime

The installation of CODESYS Control Runtime System converts any type of industrial PC into a powerful scalable PLC, leveraging the performance of the PC itself. Several ASEM systems can be programmed with the CODESYS development tool, becoming real controllers based on ARM Cortex or x86 processors.

→ ASEM offers controllers based on Windows 32 bit or Windows CE operating systems

→ ASEM integrates the CODESYS Control Runtime on three PAC systems (Programmable Automation Controller) dedicated to control:
- → LP30/31 (ARM based)
- → LP40 (ARM multicore based)
- → LP2200 (x86 based)
- → LBM40 (ARM multicore based)
- → LBM2200 (x86 based)
- → LBM3400 (x86 based)

→ The CODESYS Control Runtime System can also be installed on all other x86 families of the ASEM Industrial PC range, able to support also SoftMotion + CNC applications

CODESYS
The components

Fieldbus

CODESYS - Fieldbus

The CODESYS development environment integrates the support of different fieldbuses such as CANopen, Profibus, EtherCAT or EtherNet/IP, including additional protocol stacks

→ Support for the most used fieldbuses with integrated configurator: CANopen, Modbus, Profibus, etc.

→ Support for real-time EtherNet systems: EtherCAT, EtherNet/IP, etc.

→ Management of I/O assignment and diagnosis independent from fieldbuses

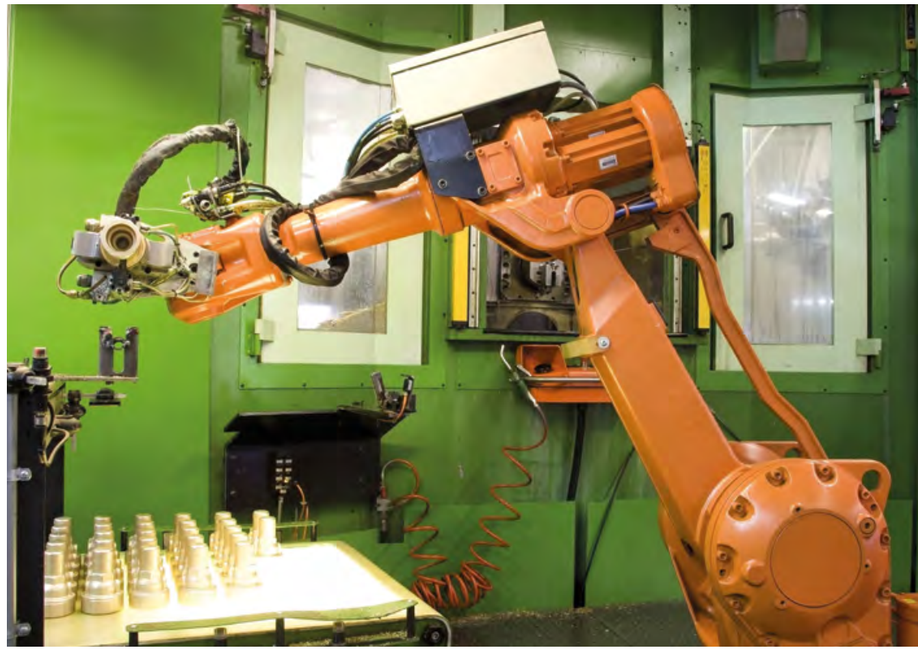
Motion + CNC

CODESYS Motion+CNC

Logic control and Motion control in one development tool. An optional modular solution is completely integrated in the CODESYS programming system to manage complex movements with a IEC 61131-3 programmed controller

→ Management of any type of application, from simple basic Motion applications to complex CNC controls

→ Library modules for the control of interpolations and transformations and for axis control - PLCopen



Panel PACs

Panel PAC Solutions

The current portfolio of ASEM PAC solutions includes the LP30/31 family with ARM Cortex A8 (i.MX535 1GHz or i.MX537 800 MHz) processors, the LP40 family with ARM Cortex A9 (i.MX6 DualLite 1,0 GHz) and Windows Embedded Compact 7 Pro operating system, the LP2200 family with Intel® Celeron J1900 quad core (2,00 GHz) processor and Windows Embedded Standard 7E/7P operating systems.

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

For further information regarding CODESYS control software on ASEM Industrial PCs, visit our website: http://www.asem.it/en/products/industrial-automation/control-software/

LP30 / LP31

ARM based panel PACs

The fanless panel PAC family LP30/31 is based on the ARM Cortex A8 (i.MX535 and i.MX537) 1GHz/800MHz processor.
They are supplied with Windows Embedded Compact 7 Pro operating system and integrates the numerous and advanced functionalities of Codesys 3.5 SoftPLC, Premium HMI visualization software (Basic or Advanced version) and ASEM UBIQUITY remote assistance software. They also include ASEM System Manager, a software utility suite for the management of the panel.
The LP30/31 family is available with 16 million color LED Backlight TFT LCDs from 5.7" to 15.6", in 4:3 and Wide aspect ratio, with aluminium or aluminium TrueFlat front panels with 4 or 5 wires resistive touchscreen. All versions with Wide LCD are also available with aluminium and glass TrueFlat Capacitive front panel, with projected capacitive touchscreen.
The "all in one" motherboard provides one EtherNet 10/100Mbps port, one EtherNet 100Mbps port, two USB 2.0 ports, one serial RS232/422/485 interface with rear external access, 1 GB DDR3 RAM, 256MB Nand-Flash for the operating system and the runtimes, 4GB pseudo-SLC eMMC memory to save and manage the HMI projects data and a removable SDHC memory slot.
LP30/31 systems have a 24 VDC power supply input and an integrated MicroUPS based on supercapacitors.
LP31 versions have an additional CAN interface and isolated power supply.

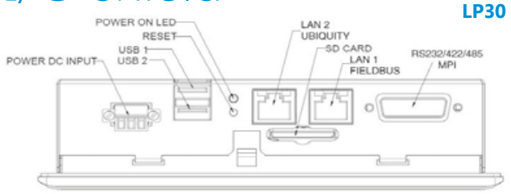
Highlights

- → CODESYS SoftPLC for control applications with retentive data management
- → Fieldbuses: EtherCAT, Modbus TCP, Modbus RTU, CANOpen
- → Premium HMI visualization software
- → UBIQUITY remote assistance software providing remote access to the system
- → LP31 versions with additional CAN interface
- → MicroUPS with supercapacitors for retentive data management
- → ARM Cortex A8 processor
- → Operating temperature 0°C÷+50°C
- → 5.7", 8.4", 10.4", 12.1" and 15" LCDs in 4:3 aspect ratio, 7", 10.1", 12.1" and 15.6" LCDs in Wide aspect ratio
- → Available with TrueFlat Capacitive front panel, with glass projected capacitive touchscreen (only for Wide LCD formats)
- → CE, cULus LISTED (508) certifications
- → ATEX area 2/22 certification (only for LP30)

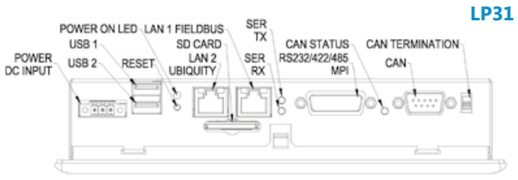
Gallery

I/O shield

LP30



LP31



Technical data

	LP30 / LP30-TF	LP30-TFC	LP31 / LP31-TF	LP31-TFC
CONTROL SOFTWARE	CODESYS SP v3.x			
supported protocols	EtherCAT Master, MODBUS TCP Master, MODBUS RTU Master		EtherCAT Master, MODBUS TCP Master, MODBUS RTU Master, CANopen Master	
HMI Software	PREMIUM HMI 5 BASIC | ADVANCED			
REMOTE ASSISTANCE SW	ASEM UBIQUITY PRO			
OS INSTALLED	Microsoft Windows Embedded Compact 7 Pro with Datalight Reliance Nitro file system			
LED backlight TFT LCD	5.7" - 640x480 7" W - 800x480 8.4" - 800x600 10.1" W - 1280x800 10.4" - 800x600 12.1" - 800x600 12.1" - 1024x768 12.1" W - 1280x800 15.0" - 1024x768 15.6" W - 1366x768	7" W - 800x480 10.1" W - 1280x800 12.1" W - 1280x800 15.6" W - 1366x768	7" W - 800x480 8.4" - 800x600 10.1" W - 1280x800 10.4" - 800x600 12.1" - 800x600 12.1" - 1024x768 12.1" W - 1280x800 15.0" - 1024x768 15.6" W - 1366x768	7" W - 800x480 10.1" W - 1280x800 12.1" W - 1280x800 15.6" W - 1366x768
TOUCHSCREEN	Resistive 4 / 5 wires	P-CAP projected capacitive	Resistive 4 / 5 wires	P-CAP projected capacitive
FRONT PANEL	Aluminium	True Flat Aluminium	Aluminium	True Flat Aluminium
	True Flat Aluminium		True Flat Aluminium	
PROTECTION GRADE	IP66, Enclosure type 4x - frontal			
PROCESSOR	ARM Cortex A8 i.MX535 a 1 GHz		ARM Cortex A8 i.MX537 a 800 MHz	
SYSTEM MEMORY - RAM	1 GB DDR3 soldered on board			
MASS STORAGE	256 MB NAND-Flash			
	4 GB eMMC pseudo-SLC			
	1 x Slot SD/SDHC v2.0			
LAN	LAN1 EtherNet 100 Mbps (RJ45)			
	LAN2 EtherNet 10/100 Mbps (RJ45)			
USB	2 x USB 2.0 rear (Type-A)			
SERIAL	1 x RS-232/422/485 (DB15M)			
FIELDBUS INTERFACES	-		1 x CAN isolated channel (DB9M) with FlexCAN integrated controller	
POWER SUPPLY INPUT	24VDC		24VDC isolated	
	MicroUPS max 500ms, with supercapacitors			
OPERATING TEMPERATURE	0°- 50°C			
APPROVALS	CE, cULus LISTED (508), ATEX zone 22, II 3 D (LP30) ATEX zone 2/22, II 3 G D (LP30-TF, LP30-TFC)			

LP40

ARM multicore based panel PACs

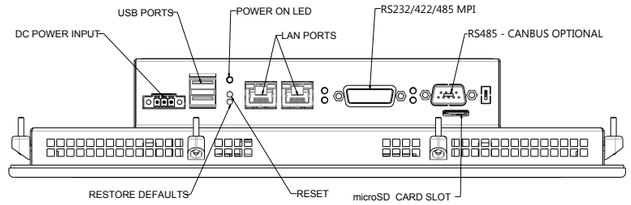
The fanless panel PAC family LP40 is based on the ARM Cortex A9 (i.MX6 DualLite) 1GHz dual core processor. They are supplied with Windows Embedded Compact 7 Pro operating system and integrates the numerous and advanced functionalities of Codesys 3.5 SoftPLC, Premium HMI visualization software (Basic or Advanced version) and ASEM UBIQUITY remote assistance software. They also include ASEM System Manager, a software utility suite for the management of the panel.
The LP40 family is available with 16 million color LED Backlight TFT LCDs from 7" to 15.6", in 4:3 and Wide aspect ratio, with aluminium or aluminium TrueFlat front panels with 4 or 5 wires resistive touchscreen. All versions with Wide LCD are also available with aluminium and glass TrueFlat Multitouch front panel, with projected capacitive touchscreen.
The "all in one" motherboard provides two EtherNet 10/100/1000Mbps ports, two USB 2.0 ports, a serial RS232/422/485 interface with rear external access, 1 GB DDR3 RAM, 4GB Pseudo-SLC eMMC memory and a slot for a removable MicroSD. Optionally, an additional RS485 serial port or CAN port with rear access is available. LP40 systems have an isolated 24 VDC power supply input and an integrated MicroUPS with replaceable supercapacitors and 512kB MRAM (Magnetoresistive RAM).

Highlights

- → CODESYS SoftPLC for control applications with retentive data management
- → Fieldbuses: EtherCAT, Modbus TCP, Modbus RTU, CANOpen
- → Premium HMI visualization software
- → UBIQUITY remote assistance software providing remote access to the system
- → Additional RS485 or CAN interface (optional)
- → MicroUPS with replaceable supercapacitors for retentive data management
- → ARM Cortex A9 dual core processor
- → Operating temperature 0°C÷+50°C
- → 8.4", 10.4", 12.1" and 15" LCDs in 4:3 aspect ratio, 7", 10.1", 12.1" and 15.6" LCDs in Wide aspect ratio
- → CE, cULus LISTED (61010) certifications
- → ATEX area 2/22 certification

Gallery

I/O shield



Technical data

	LP40	LP40-TF	LP40-TFM
CONTROL SOFTWARE	CODESYS SP v3.x		
supported protocols	EtherCAT Master, MODBUS TCP Master, MODBUS RTU Master, CANopen Master		
HMI Software	PREMIUM HMI 5 BASIC | ADVANCED		
REMOTE ASSISTANCE SW	ASEM UBIQUITY PRO		
O.S. INSTALLED	Windows Embedded Compact 7 Pro with Datalight Reliance Nitro file system		
PROCESSOR	ARM Cortex A9 1GHz i.MX6 DualLite		
DRAM / SYSTEM MEMORY	1 GB DDR3 soldered on board		
MASS STORAGE	4 GB eMMC pseudo-SLC		
	1x microSD slot on board with external access		
LED backlight TFT LCD	7" W - 800x480 8.4" - 800x600 10.1" W - 1280x800 10.4" - 800x600 12.1" - 800x600 12.1" - 1024x768 12.1" W- 1280x800 15.0" - 1024x768 15.6" W - 1366x768		7" W - 800x480 10.1" W - 1280x800 12.1" W- 1280x800 15.6" W - 1366x768
TOUCHSCREEN	Resistive 4 / 5 wires		P-CAP Multitouch
FRONT PANEL	Aluminium	True Flat Aluminium	True Flat Aluminium
PROTECTION DEGREE	IP66, Enclosure type 4x - front		
INTERFACES	2 x LAN 10/100/1000 Mbps		
	2 x USB 2.0 rear (Type-A)		
	1 x RS232/422/485 (DB15M) with MPI support (187Kb/s)		
	1 x RS485 isolated (DB9M) with terminations (optional)		
	1 x CAN isolated channel (DB9M) and terminations (optional)		
POWER SUPPLY INPUT	24VDC isolated		
	MicroUPS with 512kB Magnetoresistive RAM removable		
OPERATING TEMPERATURE	0°- 50°C		
APPROVALS	CE, cULus LISTED (61010) pending, ATEX zone 22, II 3 D	CE, cULus LISTED (61010) pending, ATEX zone 2/22, II 3 G D	

LP2200

Intel® Bay Trail™ based panel PACs

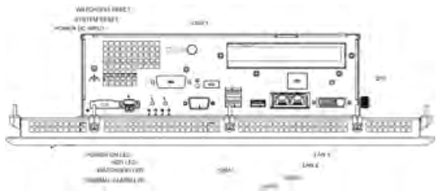
The fanless Panel PAC family LP2200 is based on the Celeron J1900 2GHz quad core processor of the Intel® Bay Trail™ System On Chip (SoC) platform.
It is supplied with Windows Embedded Standard 7E or 7P operating system and integrates the numerous and advanced functionalities of Codesys 3.5 SoftPLC, Premium HMI visualization software (Basic or Advanced version) and ASEM UBIQUITY remote assistance software.
The LP2200 family is available with 16 milion color LED Backlight TFT LCDs from 10.1" to 24", in 4:3, 5:4 and Wide aspect ratio, with aluminium or aluminium TrueFlat front panels with 5 wires resistive touchscreen and an additional USB 2.0 port. All versions with Wide LCD are also available with aluminium and glass TrueFlat Multitouch front panel, with projected capacitive touchscreen.
The "all in one" motherboard provides two EtherNet 10/100/1000Mbps ports that support "Jumbo Frame" and "Wake on Lan" functionalities, a USB 3.0 port, two USB 2.0 ports, a serial RS232 interface, a DVI-I (DVI-D + VGA) video output and a SATA II CFast slot with rear access, an mSATA connector for the installation of a SATA II SSD, up to 8 GB RAM with one DDR3 SODIMM module and an internal connector for the installation of additional serial and USB interfaces.
LP2200 systems have an isolated 24 VDC power supply input and an integrated MicroUPS with supercapacitors or, as an alternative, an UPS with integrated electronics and external battery pack, both with 512kB MRAM (Magnetoresistive RAM).

Highlights

- → CODESYS SoftPLC for control applications with retentive data management
- → Fieldbuses: EtherCAT, Profibus, Profinet, Modbus TCP, Modbus RTU, CANOpen
- → Premium HMI visualization software
- → UBIQUITY remote assistance software providing remote access to the system
- → MicroUPS with supercapacitors for retentive data management
- → UPS with external battery pack (optional)
- → Intel® Bay Trail™ SoC platform
- → Operating temperature 0°C÷+50°C
- → 10.4", 12.1" and 15" LCDs in 4:3 aspect ratio, 17" and 19" LCDs in 5:4 aspect ratio, 10.1", 12.1", 15.6", 18.5", 21.5" and 24" LCDs in Wide aspect ratio
- → CE, cULus LISTED (508) certifications

Gallery

I/O shield



Technical data

	LP2200 Win32	LP2200-TF Win32	LP2200-TFM Win32
CONTROL SOFTWARE	CODESYS SP RTE v3.x		
supported protocols	EtherCAT Master, MODBUS TCP Master, MODBUS RTU Master, PROFIBUS Master/Slave, CANopen Master, Profinet IO Controller/Device		
HMI SOFTWARE	PREMIUM HMI 5 BASIC | PRO | ADVANCED		
REMOTE ASSISTANCE SW	ASEM UBIQUITY PRO		
OS INSTALLED	Microsoft Windows Embedded Standard 7E 32 bit		
	Microsoft Windows Embedded Standard 7P 32 bit		
LED backlight TFT LCD	10.1" W - 1290x800 10.4" - 800x600 12.1" - 800x600 12.1" - 1024x768 12.1" W - 1280x800 15.0" - 1024x768 15.6" W - 1366x768 15.6"W - 1920x1080 18.5"W - 1366x768 18.5"W - 1920x1080 21.5"W - 1920x1080 24"W - 1920x1080		10.1" W - 1280x800 12.1" W - 1280x800 15.6" W - 1366x768 15.6"W - 1920x1080 18.5"W - 1366x768 18.5"W - 1920x1080 21.5"W - 1920x1080 24"W - 1920x1080
TOUCHSCREEN	Resistive 5 wires	Resistive 5 wires	P-CAP multitouch
	GFG (Optional)		
FRONT PANEL	Aluminium	True Flat Aluminium	
PROTECTION GRADE	IP66 - frontal		
PROCESSOR	Intel® Celeron J1900 quad core 2.0GHz, 4 cores / 4 threads, 2MB L2 cache, soldered		
VIDEO CONTROLLER	Intel® HD Graphics integrated in microprocessor, 688MHz Clock 854MHz Turbo, LVDS 8bit/color digital interface		
SYSTEM MEMORY - RAM	2GB or 4GB or 8GB (SODIMM DDR3 module)		
MASS STORAGE	1 bootable CFast slot on board with external access		
	1 x SSD mSATA SATA II oe 1 x SSD 2,5" or 1 x HDD 2,5" SATA II		
LAN	2 x LAN 10/100/1000Mbps (2 x Intel® I210)		
USB	1 x USB 3.0 rear (Type-A)		1 x USB 3.0 rear (Type-A)
	2 x USB 2.0 rear (Type-A)		2 x USB 2.0 rear (Type-A)
	1 x USB 2.0 front (Type-A)		
SERIAL	1 x RS232 (DB9M)		
VIDEO OUTPUT	1 x DVI-I (DVI-D + VGA with adapter)		
ADD-ON INTERFACES (optional, max 1)	1 x RS232/422/485 (DB15M)+ 1 x USB 2.0 (Type-A)		
	1 x RS232/422/485 (DB15M) isolated + 1 x USB 2.0 (Type-A)		
RITENTIVE MEMORY	512kB Magnetoresistive RAM		
POWER SUPPLY INPUT	24VDC isolated with MicroUPS with supercapacitors or 24VDC isolated with UPS (optional) with external battery pack		
OPERATING TEMPERATURE	0°- 50°C		
APPROVALS	CE, cULus LISTED (508)		

Book Mounting PACs

Book Mounting PAC Solutions

The current portfolio of ASEM Book Mounting PAC solutions includes the LBM40 with ARM Cortex A9 DualLite processor (i.MX6 1,0 GHz) and Windows Embedded Compact 7 Pro operating system, the LBM2200, based on Intel® Celeron J1900 quad core (2,00 GHz) processor, the LBM3400 family, based on Intel® Celeron and 6th generation Core™ i3, i5, i7 processors and Windows Embedded Standard 7E/7P 32 bit operating systems. ASEM book mounting PACs have an integrated MicroUPS with supercapacitors or a UPS with integrated electronics and external battery, both with 512kB MRAM (Magnetoresistive RAM) and, in addition to the SoftPLC, they provide the execution of UBIQUITY remote assistance software.

For further information regarding CODESYS control software on ASEM Industrial PCs, visit our website: http://www.asem.it/en/products/industrial-automation/control-software/

LBM40 [new]

ARM multicore based book mounting PAC

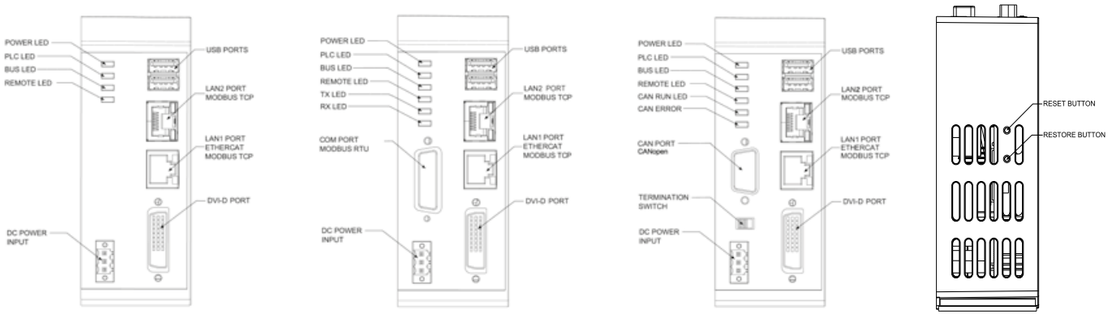
The Book Mounting ARM based PAC LBM40 is based on the ARM Cortex A9 1GHz dual core processor (i.MX6).
It is supplied with Windows Embedded Compact 7 Pro operating system and integrates the numerous and advanced functionalities of Codesys 3.5 SoftPLC and ASEM UBIQUITY remote assistance software.
The chassis integrates a fast hooking system for the standard 35mm DIN rail.
The motherboard provides, on the front, one 10/100/1000 Mbps and one 100 Mbps EtherNet ports, two USB 2.0 ports, a DVI-D video output and the signaling LEDs. The motherboard also provides an internal slot for a removable MicroSD memory card, 4GB pseudo-SLC eMMC memory and 1 GB DDR3 RAM.
LBM40 has an isolated 24 VDC power supply input and an integrated MicroUPS with supercapacitors and 512kB MRAM (Magnetoresistive RAM).
LBM40, optionally, can be provided with an additional RS232/485 serial port or with a CAN interface.

Highlights

- → CODESYS SoftPLC for control applications with retentive data management
- → Fieldbuses: EtherCAT, Modbus TCP, Modbus RTU, CANOpen
- → UBIQUITY remote assistance software providing remote access to the system
- → Additional RS232/485 or CAN interface (optional)
- → MicroUPS with supercapacitors for retentive data management
- → ARM Cortex A9 dual core processor
- → Operating temperature 0°C÷+50°C
- → CE, cULus LISTED (61010) certifications

Gallery

I/O shield



Technical data

	LBM40 E	LBM40 ES	LBM40 EC
CONTROL SOFTWARE	CODESYS SP v3.x		
supported protocols	EtherCAT Master, MODBUS TCP Master, MODBUS RTU Master, CANopen Master		
O.S. INSTALLED	Microsoft Windows Embedded Compact 7 Pro		
PROCESSOR	ARM Cortex A9 1GHz i.MX6 DualLite		
SYSTEM MEMORY - RAM	1 GB with DDR3 chips soldered		
NVRAM	512kB Magnetoresistive RAM		
MASS STORAGE	4 GB eMMC pseudo-SLC		
	1 x Slot microSD		
LAN	1 x EtherNet 10/100/1000 Mbps (Intel 82574L, RJ45); 1 x EtherNet 10/100 Mbps (RJ45)		
USB	2 x USB 2.0 (Type-A)		
SERIAL	1 x RS232/485 isolated (DB15M) (optional, alternative to CAN)		
FIELDBUS	1 x CAN isolated channel (DB9M) with terminations (optional, alternative to RS232/485)		
BATTERY	1 x CR2032 Removable (internal)		
VIDEO OUTPUT	1 x DVI-D		
POWER SUPPLY INPUT	24VDC isolated		
	Backup for microinterruption, max 500ms, with supercapacitors		
OPERATING TEMPERATURE	0°- 50°C		
APPROVALS	CE, cULus (61010) pending		

LBM2200

Intel® Bay Trail™ based Book Mounting PACs

The Book Mounting fanless PAC of the LBM2200 family are based on the Celeron J1900 2GHz quad core processor of the Intel® Bay Trail™ System On Chip (SoC) platform.
They are supplied with Windows Embedded Standard 7E or 7P 32 bit operating system and integrates the numerous and advanced functionalities of CODESYS 3.5 SoftPLC and ASEM UBIQUITY.
LBM2200 systems have a sturdy aluminum chassis, highly refined in every aesthetic and ergonomic detail.
The "all in one" motherboard provides, on top, two EtherNet 10/100/1000Mbps ports that support "Jumbo Frame" and "Wake on Lan" functionalities, two USB 2.0 ports, a DVI-I (DVI-D + VGA) video output or, as an alternative, a Remote Video Link connector (RJ45) for the remotation up to 100 meters of video and USB signals; on front, a USB 3.0 port, a SATA II CFast slot, the extractable system battery slot and the signalling LEDs.
The motherboard provides also an mSATA connector for a SATA II SSD, a SATA II connector for a 2.5" SSD/HDD, up to 8 GB RAM with one DDR3 SODIMM module and an internal connector for the installation of additional serial and LAN interfaces.
LBM2200 systems have an isolated 24 VDC power supply input with the MicroUPS based on supercapacitors or, as an alternative, the UPS with integrated electronics and external battery, both with 512kB MRAM (Magnetroresistive RAM).

c UL us LISTED

UBIQUITY

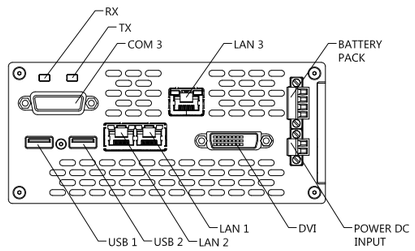
CODESYS

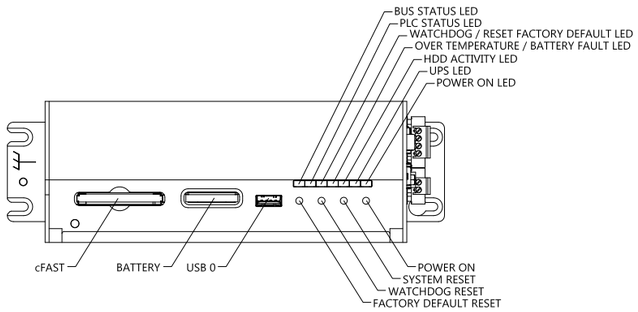
Highlights

- → CODESYS SoftPLC for control applications with retentive data management
- → Fieldbuses: EtherCAT, Modbus TCP, Modbus RTU, EtherNet IP
- → UBIQUITY remote assistance software providing remote access to the system
- → MicroUPS with supercapacitors for retentive data management
- → UPS with external battery pack (optional)
- → High performance Intel® Bay Trail™ SoC platform
- → Operating temperature 0°C÷+50°C
- → RVL version (Remote Video Link) with remotation of DVI and USB 2.0 signals up to 100m
- → CE, cULus LISTED (61010) certifications

Gallery

I/O shield





Technical data

	LBM2200	LBM2200 RVL
CONTROL SOFTWARE	CODESYS SP RTE v3.x	
supported protocols	EtherCAT Master, MODBUS TCP Master, MODBUS RTU Master, EtherNet IP Scanner	
O.S. INSTALLED	Microsoft Windows Embedded Standard 7E/7P 32 bit	
PROCESSOR	Intel® Celeron J1900 2.00Ghz, 4 cores / 4 threads, 2MB L2 cache, soldered	
VIDEO CONTROLLER	Intel® HD Graphics integrated in microprocessor, 688MHz Clock 854MHz Turbo, LVDS 8bit/color digital interface	
SYSTEM MEMORY - RAM	2GB or 4GB or 8GB (1 x SODIMM DDR3 module)	
RITENTIVE MEMORY	512kB Magnetoresistive RAM	
MASS STORAGE	1 bootable CFast slot on board with front external access	
	1 x SSD mSATA SATA II or 1 x SSD or 1 x HDD 2,5" SATA II	
LAN	2 x LAN 10/100/1000Mbps (2 x Intel® I210)	
USB	1 x USB 3.0 front (Type-A)	
	2 x USB 2.0 top (Type-A)	
BATTERY	1 x CR2032 Removable front access	
VIDEO OUTPUT	1 x DVI-I top (DVI-D + VGA with adapter)	RJ45 connector for the DVI-D and USB 2.0 signals remotation up to 100mt
ADD-ON INTERFACES	1 x RS232/422/485 (DB15M) isolated + 2 x RS232 (DB9M)	
	1 x RS232/422/485 (DB15M) isolated + 1 x LAN 10/100/1000Mbps (Intel® I210)	
POWER SUPPLY INPUT	24VDC isolated with MicroUPS with supercapacitors or 24VDC isolated with UPS (optional) with external battery pack	
CASE Installation	Wall book mounting	
Material	Alluminium alloy 6082/5754/5056	
OPERATING TEMPERATURE	0°- 50°C	
	0°- 45°C with HDD 24x7	
	5°- 45°C with standard HDD	
APPROVALS	CE, cULus LISTED (61010) pending	

LBM3400 [new]

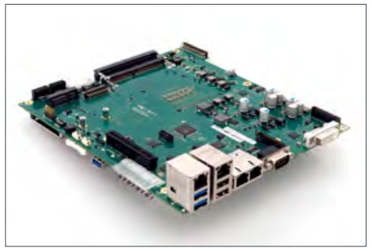
Intel® Skylake™ based Book Mounting PACs

The Book Mounting fanless PAC of the LBM3400 family are based on Celeron, Core™ i3, i5 and i7 dual and quad core processors of the Intel® Skylake™ platform.
They are supplied with Windows Embedded Standard 7E or 7P 32 bit operating system and integrate the numerous and advanced functionalities of CODESYS 3.5 SoftPLC and ASEM UBIQUITY.
LBM3400 systems have a sturdy aluminum chassis, highly refined in every aesthetic and ergonomic details.
The "all in one" motherboard provides, on top, four EtherNet 10/100/1000Mbps ports that support "Jumbo Frame" and "Wake on Lan" functionalities, two USB 3.0 ports, two USB 2.0 ports, one DVI-D video output and, optionally, one or two Remote Video Link connector (RJ45) for the remotation of the video and USB signals up to 100m; on front, a USB 3.0 port, a SATA III CFast slot, the extractable system battery slot, the signaling LEDs and up to two extractable drawers for mass storage devices.
The motherboard provides also an mSATA connector for a SATA III SSD, two SATA III connectors for 2.5" SSDs/HDDs, the possibility to set the mass storage devices in RAID 0, 1 configuration, up to 32 GB RAM with two DDR4 SODIMM modules and an internal connector for the installation of additional serial and USB interfaces.
LBM3400 systems have an isolated 24 VDC power supply input with the MicroUPS based on supercapacitors or, as an alternative, the UPS with integrated electronics and external battery, both with 512kB MRAM (Magnetroresistive RAM).

Highlights

- → CODESYS SoftPLC for control applications with retentive data management
- → Fieldbuses: EtherCAT, Modbus TCP, Modbus RTU, EtherNet IP
- → UBIQUITY remote assistance software providing remote access to the system
- → MicroUPS with supercapacitors for retentive data management
- → UPS with external battery pack (optional)
- → High performance Intel® Skylake™ platform
- → Operating temperature 0°C÷+50°C
- → Up to 2 Remote Video Link - remotation of DVI and USB 2.0 signals up to 100m
- → CE, cULus LISTED (61010) certifications

Gallery



Technical data

	LBM3400
CONTROL SOFTWARE	CODESYS SP RTE v3.x
supported protocols	EtherCAT Master, MODBUS TCP Master, MODBUS RTU Master, EtherNet IP Scanner
O.S. INSTALLED	Microsoft Windows Embedded Standard 7E/7P 32 bit
PROCESSORS	Intel® Celeron G3900E 2.40GHz 64bit, 2 cores / 2 threads, 2MB Smart cache, soldered Intel® Core i3-6100E 2.70GHz 64bit, 2 cores / 4 threads, 3MB Smart cache, soldered Intel® Core i5-6440EQ 2.70GHz (3.40GHz Turbo) 64bit, 4 cores / 4 threads, 6MB Smart cache, soldered Intel® Core i7-6820EQ 2.80GHz (3.50GHz Turbo) 64bit, 4 cores / 8 threads, 8MB Smart cache, soldered
VIDEO CONTROLLER	Intel® HM170 PCH (Platform Controller Hub)
PROCESSORS	Intel® HD Graphics 510 integrated in Celeron 3900E processor ▪ 350MHz/950MHz ▪ DirectX 12 and OpenGL 4.4 support Intel® HD Graphics 530 integrated in Core i3-6100E processor ▪ 350MHz/950MHz ▪ DirectX 12 and OpenGL 4.4 support Intel® HD Graphics 530 integrated in Core i5-6440EQ, Core i7-6820EQ processors ▪ 350MHz/1,00GHz ▪ DirectX 12 and OpenGL 4.4 support
SYSTEM MEMORY - RAM	4GB or 8GB or 16GB or 32GB (SODIMM DDR4 modules)
MASS STORAGE	1 bootable CFast slot on board with external access (front) 1 x SSD mSATA SATA III without RVL: 1 x SSD/HDD 2,5" SATA III or max 2 x SSD/HDD 2,5" SATA III with front extractable drawer with RVL: 1 x SSD/HDD 2,5" SATA III or 1 x SSD/HDD 2,5" SATA III with front extractable drawer
LAN	4 x LAN 10/100/1000Mbps top (3 x Intel® I210 + 1 x Intel® I219LM)
USB	1 x USB 3.0 front (Type-A)
	2 x USB 2.0 top (Type-A) + 2 x USB 3.0 top (Type-A)
SERIAL	1 x RS232 (DB9M)
BATTERY	1 x CR2032 Removable access front
VIDEO OUTPUT	1 x DVI-D top 1 or 2 x RJ45 connectors Remote Video Link (DVI-D and USB 2.0 signals remotation up to 100 m, optional)
ADD-ON INTERFACES (optional)	1 x RS232/422/485 (DB15M) + 1 x USB 2.0 (Type-A)
	1 x RS232/422/485 (DB15M) isolated + 1 x USB 2.0 (Type-A)
	2 x RS232 (DB9M)
	2 x USB 2.0 (Type-A)
POWER SUPPLY INPUT	24VDC isolated with MicroUPS with supercapacitors
	24VDC isolated with UPS (optional) with external battery pack
RITENTIVE MEMORY	512kB Magnetoresistive RAM
CASE Installation	For book mounting
Material	Alluminium alloy 6082/5754/5056
OPERATING TEMPERATURE	0°- 50°C
	0°- 45°C with HDD 24x7 or Core i7 in S2 versions
	5°- 45°C with standard HDD
APPROVALS	CE, cULus LISTED (61010) pending

Remote I/O

ARIO 500 [new]

Modular remote I/O system

ARIO 500 is a compact and modular remote I/O system, composed by fieldbus couplers, power modules and I/O modules.
To improve interchangeability and maintenance, the I/O modules are composed by two separable parts: the mechanical part, including a jagged clamp (that allows tidy wiring), the communication bus contacts, the power contacts and the hooking system for the 35mm DIN rail, and the electronic I/O part.

Mounting and maintenance
The installation is immediate and doesn't imply the use of specific tools. Every module include the mechanical DIN rail fastening by means of a lever lock and can be replaced without removing the adjoining ones.
Thanks to the 'slide&plug' mechanism, it is possible to replace the electronic part without removing the mechanical one, nor its wiring («Permanent Wiring»).
The electrical connection diagram of the module is printed on the side of the electronic part.

Signalling
Every module includes status signalling LEDs for the single I/O and diagnistic LEDs.

I/O identification
To identify every single I/O, removable and customizable tags are inserted on each module.

Fieldbus coupler and power modules

Fieldbus coupler

The coupler manages the communication with the control system via the fieldbus and the communication with the single I/O modules via the internal high performance bus. Every coupler is bundled with a power module, that comes physically paired at delivery.

The ARIO 500 system includes three fieldbus couplers, with the following standards:
→ EtherCAT
→ Modbus TCP

Power modules

The power modules, depending on the quantity and the type of installed modules, integrate the power supplied by the coupler.

I/O modules

Digital modules

The digital modules, with 4 or 8 channels, include input units with rates of response up to 2µs and output units with 0,5A and 2A.
Some of the modules include diagnostic functionalities.

Analog modules

Analog modules, with 2 or 4 channels and 16bit resolution, include input and output units for tension or current, and temperature measure units for the most common sensors.
All modules include diagnostic functionalities.

Encoder modules

The counter/encoder modules, with 1 or 2 channels, include TTL and HTL incremental encoders and SSI absolute encoders.

System configurability

The couplers can support up to 64 I/O modules. Depending on their configuration it may be necessary to integrate their power supply with the specific additional modules.
The couplers are bundled with a plastic terminal cover to protect the contacts of the last module.

Integrated control systems

The ARIO 500 system completes the ASEM PAC portfolio, based on the CODESYS soft-PLC.
The fieldbus coupler and the I/O modules are completely configurable and programmable with the CODESYS development framework.

Programmable Automation Controller
Panel or Book Mounting

FIELDBUS

ARIO 500 system

Technical data

FIELDBUS COUPLER				
EtherCAT	Up to 64 I/O modules	CAN over EtherCAT (CoE supported)		
MODBUS TCP	Up to 64 I/O modules	I/O access from max 8 stations	Parametrization via integrated web server	Auto negotiation and auto crossover
DIGITAL INPUT				
DI 4x3ms 24VDC	4 digital inputs	IEC 61131-2, type 1 input curve	Edge input delay 3ms	
DI 8x3ms 24VDC	8 digital inputs	IEC 61131-2, type 1 input curve	Edge input delay 3ms	
DI 4x2µs÷3ms 24VDC	4 digital inputs	IEC 61131-2, type 1 input curve	Parametrizable input delay 2µs÷3ms	
DI 8x0,5ms 24VDC	8 digital inputs	IEC 61131-2, type 1 input curve	Edge input delay 500µs	
DI 8x100µs 24VDC dgn	8 digital inputs	IEC 61131-2, type 3 input curve	Parametrizable 100µs÷20ms input delay	Diagnostic function
DIGITAL OUTPUTS				
DO 4x0.5A 24VDC	4 digital outputs	Output current 0,5A	Edge Output delay 0»1: 30µs Edge Output delay 1»0: 175µs Switching frequency up to 1kHz	
DO 8x0.5A 24VDC	8 digital outputs	Output current 0,5A	Edge Output delay 0»1: 30µs Edge Output delay 1»0: 175µs Switching frequency up to 1kHz	
DO 4x2A 24VDC	4 digital outputs	Output current 2A	Edge Output delay 0»1: 100µs Edge Output delay 1»0: 250µs Switching frequency up to 1kHz	
DO 8x0.5A 24VDC dgn	8 digital outputs	Output current 0,5A	Edge Output delay 0»1: 350µs Edge Output delay 1»0: 350µs Switching frequency up to 1kHz	Diagnostic function
ANALOG INPUT				
AI 4x16bit ±10V	4 analog inputs, 16bit	Frequency suppression50/60Hz	Conversion time 480µs	Diagnostic and interrupt functions
AI 4x16bit 0/4...20mA	4 analog inputs, 16bit	Frequency suppression50/60Hz	Conversion time 240µs	Diagnostic and interrupt functions
ANALOG OUTPUT				
AO 4x16bit ±10V	4 analog outputs, 16bit		Conversion time 200µs	Diagnostic function
AO 4x16bit 0/4...20mA	4 analog outputs, 16bit		Conversion time 400µs	Diagnostic function
ANALOG MEASURE				
AI 2x16bit TC	2 analog inputs, 16bit	For J, K, N, R, S, T, B, C, E, L type sensor For voltage measuring range ±80mV	Internal temperature compensation	Diagnostic and interrupt functions
AI 4x16bit R / RTD lp	4 analog inputs, 16bit	Resistive sensors 0÷3000Ω and measure with 2, 3 and 4 wires Pt100, Pt1000, NI100 and NI1000 sensors		Diagnostic function Complete parameter list (22)
AI 4x16bit R / RTD sp	4 analog inputs, 16bit	Resistive sensors 0÷3000Ω and measure with 2, 3 and 4 wires Pt100, Pt1000, NI100 and NI1000 sensors		Diagnostic function Partial parameter list (8)
INCREMENTAL ENCODER				
CNT RS422 1x32bit	1 32bit counter, 5V DC differential	AB 1/2/4-fold evaluation or pulse and direction Comparison value, set value, input filter, reset	Max counting frequency 2MHz	Diagnostic and interrupt functions with µs time stamp µs time stamp for counter value
CNT HTL 2x32bit	2 32bit counters, 24V DC	AB 1/2/4-fold evaluation or pulse and direction Comparison value, set value, input filter, reset	Max counting frequency 400kHz	Diagnostic and interrupt functions with µs time stamp µs time stamp for counter value
ABSOLUTE ENCODER				
SSI RS422 1x32bit	1xSSI 8..32bit, 125kHz÷2MHz	Integrated gray/dual conversion Normalization of encoded value	Clock for master/listening modes	Diagnostic and interrupt functions with µs time stamp µs time stamp for counter value
POWER MODULES				
PS 24VDC/10A	10A / 24VDC for power integration of the I/O on the filed		Overvoltage protection Polarity inversion protection	
PS 5VDC/2A 24VDC/4A	4A / 24VDC for power integration of the I/O on the filed 2A / 5VDC for elettronic modules power supply		Overvoltage protection Polarity inversion protection	

Technical support
& Services

Technical support and service

Customer oriented philosophy
Providing a meticulous attention and a complete pre and post sales service is the foundational concept of our costumer oriented service. All internal processes aim to ensure an excellent product quality and a higher degree of flexibility, in order to be responsive to the ever-changing market needs. To ensure product and process quality, ASEM has adopted the standard UNI EN ISO 9001:2008 for its quality management system.

Introduced in 1999 and certificated by Intertek Moody Certification, the quality system is up-to-date to improve efficiency and effectiveness of our operations.

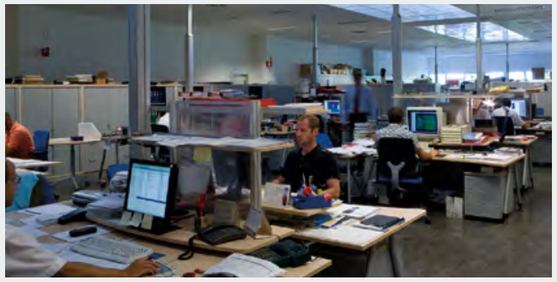
ISO 9001:2008 CERTIFICATION
Intertek
9809792

Customer care
The customer care service is led by a team of technical specialists that answer with immediacy and clarity to customers' needs, not only by telephone and via the Internet, but also with on-site visits and technical training courses. To optimize the process of support and repair of systems and to minimize response time, ASEM offers some effective services:

''HELP DESK PHONE" SERVICE can be accessed calling +39/0432/967250, from Monday to Friday from 09:00 to 12:30 and from 14:00 to 17:30 A qualified technician provides initial assistance, or starts the procedure for repairing or replacing the product (Return Material Authorization). Based on needs and the type of support required, the call may be turned to the most suitable ASEM specialist.

''HELP DESK ONLINE" SERVICE allows access to the ASEM customer care service directly online, through the company website www.asem.it.
This easy and quick tool allows to request technical assistance for any repair service, with real-time monitoring of the request status. In addition to these services, you can send any request for hardware, firmware and software support to the e-mail address suptec@asem.it.

Technical support
ASEM offers an excellent service of hardware and software consulting and assistance. It also includes a prompt and efficient system service assistance with the creation of ad-hoc operating system images, which allows to shrink the memory space needed for the installation of the operating systems (Microsoft Windows® CE, Windows® XP and Windows® XP Embedded, Windows® 7, Windows® 7 Embedded, Microsoft Windows, Windows 8.1, Windows 10 2016, Windows 10 IoT Enterprise 2016, Linux and OS real time) maintaining only the necessary components for the proper functioning of the industrial PCs and the integration with the main applicative software.



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