SIEMENS

Ingenuity for life

Industrial PCs for the Digital Factory

Higher performance, quality and sustainability with SIMATIC IPC

siemens.com/ipc

Ready for the Digital Factory

SIMATIC IPC: the platform for production digitization

In manufacturing and production, linking information across all corporate levels increases the demands placed on the computing power, functioning, and availability of industrial PCs. This is a trend that will only intensify with the growth of digitization. According to experts, the volume of digital information will increase tenfold in the next five years, particularly in the area of industrial processes. SIMATIC industrial PCs offer an innovative platform with long-term availability to prepare your machines and plants for the challenges of the Digital Factory.

Do you need to process and edit a large volume of production-related information? Then take advantage of our wide range of products for tasks such as:

- Control and monitoring of control-room processes using Rack PCs and a multimonitor configurationn
- Fast and reliable data transfer using a maintenance-free Box PC as a compact gateway to the enterprise cloud
- Powerful data acquisition and machine automation using rugged Box PCs
- Combined monitoring, operation, and PC-based control using Panel PCs
- Mobile data monitoring and acquisition using industrial Tablet PCs

The perfect solution for every requirement

SIMATIC IPC: all advantages at a glance

New product: SIMATIC IPC127E

Customized Solution

Always the right configuration for your requirements

SIMATIC IPCs excel due to the wide range of matched product series that enable you to find the right industrial PC. Select exactly the right configuration. You'll benefit from an optimal price-performance ratio and high investment protection for your application.

You can order over 90 million different configurations in quantities of one or more directly from a catalog. Can't find your IPC? Want to adapt your IPC to your corporate solution visually and/or technically? It's easy with our Express-Design. We're also happy to support you in customizing products and systems based on the SIMATIC standard – precisely tailored to your specific requirements.

The quick and easy way to a suitable system: TIA Selection Tool

Use the TIA Selection Tool to custom configure your industrial PC. An intelligent wizard helps you select components such as processors, memory, drives, cards, and operating systems. If desired, it will forward you directly to our ordering system – easily, securely, and conveniently.

		Rack PC	Box PC	Panel PC
Embedded industrial PCs Fanless	**IPC1x7** Ultra-compact		IPC127E	
	IPC2x7 Compact		IPC227E	IPC277E
	IPC4x7 Powerful		IPC427E	IPC477E
High-end industrial PCs High functionality	**IPC6x7** High performance	IPC647E	IPC627E	IPC677E
	IPC8x7 Maximum expandability	IPC847E		
Advanced industrial PCs Latest PC technology	**IPC5x7** Maximum performance	IPC547G		
Basic industrial PCs Attractive price	**IPC3x7** Available ex stock	IPC347E	IPC327E	IPC377E

Efficient from the Very Start

Integrated engineering with Totally Integrated Automation

The engineering of your automation solution forms the basis for the productivity and efficiency of your processes. It is a central lever for competently mastering the constantly increasing complexity of machines and plants. Make your production faster, more flexible, and more intelligent right from the start with Totally Integrated Automation.

Totally Integrated Automation is our solution that ensures all automation components work perfectly together. The open system architecture covers the entire production process and is completely based on:

- Consistent data management
- International standards
- Uniform hardware and software interfaces

Our SIMATIC IPCs are an integral part of Totally Integrated Automation. They can be configured easily and efficiently using the integrated TIA Portal engineering framework and integrated directly into the automation network. In this way, we minimize engineering effort while you enjoy reduced costs, a shorter time to market, more flexibility, and greater data transparency.

Take advantage of:

- System-tested automation software
- Efficient engineering
- Simple network integration
- Varied networking options

SIMATIC IPC DiagMonitor

System diagnostics for higher availability

The comprehensive, integrated system diagnostics of SIMATIC IPC DiagMonitor provide detailed information on the system status of our IPCs. They enable you to perform preventive maintenance on your industrial PCs, thus reducing downtimes, improving availability, and as a result, increasing the productivity of your machines and plants.

Quality Guarantees Your Success

Developed and built for industry

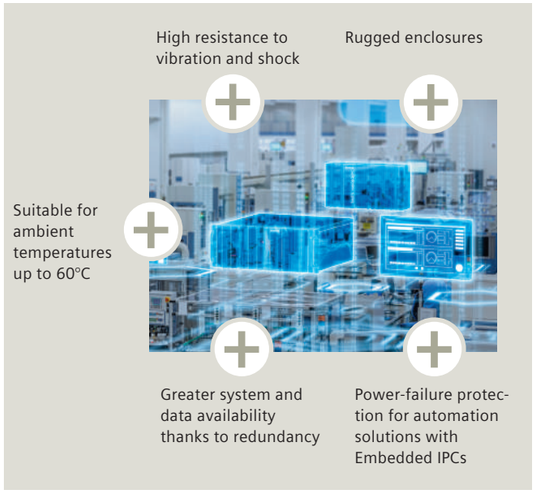
With our SIMATIC IPCs, you can count on the highest quality. We designed these devices for reliable continuous operation in an industrial environment. To meet our quality standards from the development process to the product itself, we manufacture the mainboards for increased industrial requirements in state-of-the-art plants in Germany.

When it comes to quality, we leave nothing to chance: starting in the development phase, we focus on the quality design of parts to the selection of components. Production in climate-controlled halls with constant temperature and air humidity, special test procedures, and series-accompanying type tests and trials ensure 100% correct functioning and compliance with all technical specifications. The quality of product packaging is especially high and in compliance with strict shipping guidelines to ensure that the product arrives in perfect condition. We not only comply with the requirements of CE and UL approvals but far exceed them. This is demonstrated by regular inspections of field quality.

In this way, we protect your investments. Because the products also conform to our own Siemens standard SN 36350-1 for environmentally sound product design, we also reduce the environmental impact from production to disposal.

Designed for industry

Experience the multiple-award-winning industrial design of our SIMATIC IPCs:



Quality for your industry based on an example from shipbuilding

The SIMATIC IPCs also demonstrate their quality in industries with special requirements. This includes pharmaceutical, oil and gas, and the food and beverage industries with the corresponding certifications. The same applies for the marine industry, where very specific requirements must be met. Our IPCs and operator panels have the necessary approvals even for this complex application. For an overview of all the marine certifications of SIMATIC IPCs, go to support.industry.siemens.com.

		Marine certifications					
		ABS	BV	DNV	GL	LRS	NK
SIMATIC IPC	Box PC (IPC227,IPC427,IPC627,IPC827)	✔	✔	✔	✔	✔	✔
	Panel PC (IPC277,IPC477,panel PC EX)	✔	✔	✔	✔	✔	✔
	Pack PC (IPC647)	✔	✔	✔	✔	✔	✔
	Monitors & thin clients (IFP & ITC(EX))	✔	✔	✔	✔	✔	✔

For Today and Tomorrow

SIMATIC IPCs combine innovation and continuity

With SIMATIC IPCs, you can rely on the highest degree of compatibility and long-term availability. We're constantly developing these devices further to give your investments the best possible protection. As innovations and new generations are introduced, you can continue ordering the previous version from us for at least 6 months. With almost all our solutions, we guarantee availability for 4 to 6 years and a repair and spare-parts service for 5 years. On request, you can also be provided with complete and fully ready-to-run design-freeze systems that are permanently tailored to a specific application. Wherever possible and practical, the new generation of a SIMATIC IPC series is compatible with its predecessors. Our systems feature a high level of image compatibility within each generation, which minimizes adaptation and replacement outlay.

Thanks to such practical, use-oriented innovation management, you benefit from innovations in performance and power consumption and secure your investments for many years to come.

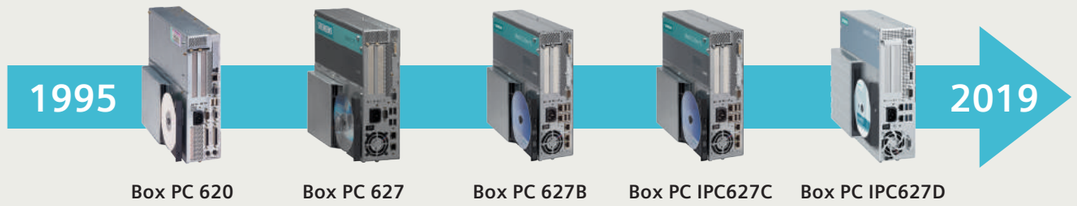
Take advantage of:

- High investment protection
- Easy and inexpensive modernization
- Simple integration into existing machine concepts

Winner of the RedDot Award for innovative industrial design and German Design Award 2018: SIMATIC IPC547G

Over 20 years of innovation and continuity

SIMATIC IPC627 How we handle innovation and investment protection for our users is demonstrated by the example of our SIMATIC IPC627. Throughout five generations and over a period of more than 20 years, this industrial PC has always combined state-of-the-art technology with a proven design – sustainability in practice.



On-site with Everything in View

Industrial Flat Panels, Thin Clients, and Tablet PCs

Wherever you require fast access to information and data in an extensive or distributed network, our industrial monitors and Thin Clients are right at home. When conditions get a little harsh, these devices are also available with all-round IP65 protection. Want even more mobility? No problem: take along our industrial Tablet PC, which concentrates our industrial PC expertise in a convenient tablet format.

With our Industrial Flat Panels, Thin Clients, and Tablet PCs, you benefit from:

- Rugged design for industrial applications
- Flexible mounting options for stationary devices
- Brilliant displays with innovative operating concepts
- Components available over the long term
- Ergonomic operation in an industrial environment

Industrial Flat Panel SIMATIC IFP: fast access on-site

Our SIMATIC IFP series excels due to its brilliant industrial displays measuring 12", 15", 19", and 22" with single-touch or multitouch operation. These devices are intended for use as stationary display units at distances of up to 30 m (display port) or at a practically unlimited distance (Ethernet port) from the PC.

Industrial Thin Clients SIMATIC ITC: for client-server architectures

If you're looking for a powerful operator panel for distributed HMI solutions, our SIMATIC ITC devices are right for you. They also have brilliant industrial displays measuring 12", 15", 19", and 22" and, with an Ethernet port, can be used almost anywhere. The Thin Clients are also available in a stand-alone version, or you can flexibly combine them with other systems.

Industrial Tablet PC: handy companion to industry

Our industrial Tablet PC is an extraordinarily powerful tablet PC with a 10" display for industrial applications. In it, we've combined everything that an industrial PC needs. This includes a rugged industrial design, sophisticated interfaces for optimal compatibility, and components with long-term availability so that you can not only customize the configuration of your Industrial Tablet PC but can also continue to use it for many years.

					
		Built-in units	All-round IP65 protection	IP66K	Mobile devices
Centralized	IPC277E	7"–19"		19"	
	IPC377E	12"–19"			
	IPC477E	12"–22"	15"–22"		
	IPC677E	15"–22"			
Distributed	IFP up to 5 m	12"–22"			
	IFP up to 30 m	12"–22"	19"–22"		
	IFP up to 100 m / unlimited	19"–22"		19"	
	ITC up to 100 m / unlimited	12"–22"	19"–22"	19"	
	Industrial Tablet PC				10.1"

Ergonomic Operation

Fast, intuitive operator panels with glass fronts

With their narrow frame and large display area, our monitors and panels not only look good but they also support efficient, fatigue-free, ergonomic operation. The industrial nonglare glass fronts are scratchproof and resistant to chemicals and have a circumferential metal frame to prevent damage. Via a projected-capacitive touch display, you can access your data quickly and intuitively based on gestures. For special commands, we also support two-hand operation as an additional security feature. The devices are also intelligent. They automatically detect inadvertent operation – for example, catching the screen with the ball of the hand or the buildup of dirt on the panel surface.

When operating your processes, take advantage of:

- Sharp, high-contrast image display with uniform brightness for better legibility
- Backlit LED display, dimmable from 0% to 100
- Multitouch operation with intelligent fault detection
- Reliability and a long service life
- Extraordinary software support: individual programming, SIMATIC TIA Portal from V13, SIMATIC WinCC from V7.2, SIMATIC WinCC OA from V3.13

Tailored to Your Application

Device versions for special requirements

To meet special ruggedness, security, or hygiene requirements, we also offer our SIMATIC IPCs from a catalog in numerous versions, made from special materials, and with various degrees of protection and special certifications. Can't find your application? At your request, we'll develop and build an entirely customized system according to your specifications.

IP65

PRO – for all-round protection

The completely IP65-protected PRO devices and their expansion modules permit flexible operation mounted on a support bracket or stand. The back cover can easily be removed from the installed device – for example, to facilitate memory-card replacement. The PRO devices are available as flat-panel monitors and embedded panel PCs with various functionalities.

SIMATIC IFP1900 PRO / IFP2200 PRO, SIMATIC ITC 1900 PRO / ITC 2200 PRO and SIMATIC IPC477E PRO 15"/19"/22" for mounting on stands and support arms; Extension units optional in 12"-22"

With the PRO devices, you benefit from:

- Mounting outside a control cabinet thanks to all-round IP65 protection
- Service-friendly design
- Easy assembly and cabling using standard connectors
- Modern, slim design with a completely scratchproof glass front
- Intuitive multitouch operation
- Extension units (optional) for an easy operation via emergency stop, selector switch, pushbutton, key switch, signal lamps or radio frequency identification (RFID) readers. They can be freely configured and upgraded, are easy to customize, and provide maximum flexibility.

[1] configuration example

INOX

INOX – for hygienic production

Our INOX versions meet the hygiene requirements of applications in the pharmaceutical, fine chemical, and food and beverage industries. These certified, stainless-steel devices with a smooth, splinter-proof surface are in accordance with the degree of protection of IP66K and are available as a 19" IPC277E Panel PC or IFP1900 with an Ethernet interface.

SIMATIC 19" IPC277E INOX PRO
for special hygiene requirements

With the INOX devices, you benefit from:

- Superior hygiene thanks to all-round IP66K-protected operator panels in stainless-steel enclosures, flush-fitting front design, and food-standard seals
- Flexible mounting options outside the control cabinet through mounting on support arms or stands

Ex

Ex versions: for the really hard cases

The all-round IP66-protected operator panels for hazardous areas can be used in Ex Zones 1/21 and 2/22 without implementing any special measures, such as an expensive enclosure or additional certifications. They are specially designed for applications in the chemical, oil & gas, and marine industries. Four different mounting types can be ordered directly via the configurator and additional equipment options selected, including an additional camera, Bluetooth, wireless functionality, and an internal RFID reader.

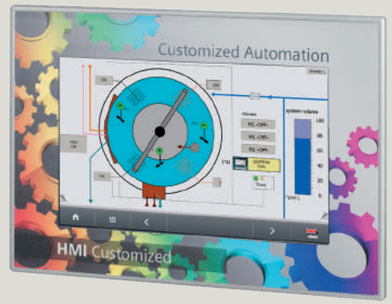
The SIMATIC HMI Panel PC Ex is available as a 22" (16:9) or 15" (4:3) version.

With the Ex devices, you benefit from:

- Simple operation of the capacitive touch display (multitouch)
- Ergonomic operation even in direct sunlight thanks to a special display (1,000 cd/m²) for a view that is virtually glare-free
- High performance capability due to high-speed Intel Core-i7 multicore processor
- Large work memory and data memory (up to 8 GB RAM and 300 GB SSD)

Individual SIMATIC IPCs: an offer that leaves nothing to be desired

If your requirements are even more specialized and cannot be fully met with our standard devices, we will assemble your device with Customized Automation. You'll also receive, among other things, individually designed panel fronts in just a few business days, including when small quantities are ordered.



A Home-Field Advantage in the Digital Factory

Application options for SIMATIC IPCs

1 Perfect interaction with SCADA software

- System-tested components reduce testing, validation, and integration overhead and shorten the time to market
- Redundancy (hard disks, servers, and integrated UPSs) guarantee high system and data availability
- Intelligent diagnostics reduce downtime and permit preventive maintenance
- Attractive complete package reduces the total cost of ownership

siemens.com/scada

2 SIMATIC IPC and S7-1500 Software Controller for innovative control solutions

- High system availability because it's not dependent on the operating system
- Fail-safe control thanks to Safety Integrated
- High level of security through know-how protection and access protection with Security Integrated
- User-friendly engineering in the TIA Portal
- Simple implementation of interfaces with PC applications
- Integration of real-time-capable, high-level language code

siemens.com/software-controller

3 Industrial Tablet PC for mobile applications

- Ideal platform for acquiring, processing, and transferring data in accordance with specific commercial requirements
- Supports sequences in production, warehousing, plant maintenance, and field service
- High availability thanks to Remote Manager and integrated diagnostics

siemens.com/itp1000

4 SIMATIC WinCC Runtime Advanced visualization software

- PC-based control and monitoring solution for stand-alone systems at the machine level
- Basic package for visualization, reporting, and logging, and user management, flexibly expandable through VB scripts
- Expanded service concepts with remote operation, diagnosis, and administration via intranet and Internet in combination with e-mail communication

siemens.com/wincc

5 Industrial image processing for optimal processes

- Powerful, reliable hardware
- High-performance quality inspection, machine operation, parts identification, process control, and code reading
- Flexible expansion options

siemens.com/ipc847e

6 Networking production with the digital world

- Open platform for acquiring, processing, and transferring production data to the cloud or in-house IT
- Rugged, maintenance-free gateways
- Reliable industrial servers

siemens.com/ipc227e

siemens.com/iot2000

Successful Applications

SIMATIC IPCs: examples of concrete applications

Optimized usability in the pharmaceutical industry

As a specialist in tablet presses, Korsch AG serves customers worldwide. Our innovative machines and concepts enable Korsch to adapt perfectly to customers' individual wishes. To gain an additional competitive advantage in the area of design and usability, Korsch is collaborating with Siemens and CaderaDesign. Sophisticated, innovative operation with gestures and a powerful automation and visualization solution ensure fast, efficient, secure operation and significantly reduce training effort.

Control system optimizes the productivity of a hot-dip galvanizing plant

Hot Dip Galvanizing Plant 2 at Thyssenkrupp Steel Europe was modernized with a new control system. Based on a SIMATIC IPC and using the SIMATIC WinCC SCADA system, the SIMATIC Process Historian, and SIMATIC Thin Clients for visualization in the plant, the Siemens Solution Partner designed an innovative and future-oriented solution characterized by high availability and data security, thus improving the performance and process safety of the entire plant.

PC-based automation solution supports research

The Laboratory for Materials and Joining Technology at the University of Paderborn in Germany is researching innovative joining technologies in the lightweight construction sector. Among other things, researchers are using a complete, multifunctional, robot-based joining cell in which various joining techniques can be investigated in a realistic production environment. Large volumes of data must be acquired, processed, and visualized during the experiments – a task handled by a SIMATIC IPC. The system has sufficient power reserves for future research and is easy to program and expand.

Machine-data acquisition

AGCO GmbH, one of the largest manufacturers and suppliers of tractors and farm machinery worldwide, offers high-tech solutions for agriculture. To facilitate more economical production processes with reduced consumption of resources, centralized and consistent end-to-end machine data acquisition has been introduced by means of panel PCs with all-round protection. Simple retrofitting of the panel PCs directly into the production plant on a stand meant that there was no need for the additional installation of a control desk, thus reducing costs even further.

Retrofitting for high performance and precision

Heinrich Kuper GmbH & Co. KG, a global player in the woodworking and plastics processing industry, is a specialist in retrofitting older machines. New automation and safety engineering with a fail-safe software controller on a main-tenance-free embedded PC multiplied the performance and precision of a customer's plant, as well as providing an integrated diagnostics capability. The control cabinet size was reduced by 20 percent and wiring by 50 percent, and machine downtimes were also shortened.

More references are availablet online: **siemens.com/automation/references**

Always by Your Side

Service and support for SIMATIC IPCs

SIMATIC IPCs are designed to operate reliably around the clock, 365 days a year. To keep them running for many years to come, we have established an appropriate service and support concept for fast and efficient assistance – and not just in the event of faults.

Global online support

Whether it's important technical documentation, comprehensive FAQs, tools and downloads, or newsletters, we provide you with quick assistance and support around the clock via the Internet with comprehensive expertise covering all sectors and application areas of SIMATIC IPCs.

Online Support app

With the Online Support app, you have access to more than 300,000 documents, anytime and anywhere. Whether you have problems during the implementation of a project, need help troubleshooting, or want to expand your system or plan a new plant, we are here for you.

PED (Product Equipment Data) service tool

With the PED service tool, you can identify and manage the device and component data of SIMATIC IPCs/PGs online and worldwide by means of standard Internet browsers.

SIMATIC hotline

The SIMATIC hotline is available by phone 24 hours a day, 365 days a year. Our engineers offer ample experience in development, system commissioning, and system tests, and incorporate the development and production departments in solving your problem, enabling them to assist you even with difficult cases.

Repair and service

Siemens has 36 repair centers in 29 countries and subsidiaries in 190 countries. As a user, you're thus provided with maximum qualified support from PC repairs in our Repair Centers to on-site servicing.

Project support

When you need support for the dimensioning and options of a PC-based automation project, or even for engineering, our specialists in the PC-based Competence Centers in Italy, Germany, and China offer you expert assistance.

There's more to it:
siemens.com/pc-based-automation
siemens.com/online-support

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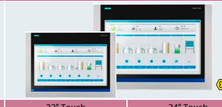
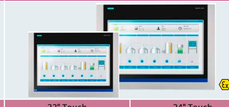
Digital Factory
Factory Automation
Gleiwitzer Str. 555
90475 Nuremberg, Germany

SIMATIC Embedded IPC

	SIMATIC IPC127E	SIMATIC IPC227E	SIMATIC IPC277E					SIMATIC IPC427E	SIMATIC IPC477E					
	New 													
General features	**Box PC**	**Box PC**	**Panel PC, 7" Touch**	**Panel PC, 9" Touch**	**Panel PC, 12" Touch**	**Panel PC, 15" Touch**	**Panel PC, 19" Touch**	**Box PC**	**Panel PC, 15" Touch**	**Panel PC, 19" Touch**	**Panel PC, 22" Touch**	**Panel PC, 24" Touch**		**General features**
Resolution in pixels	–	–	Widescreen (800 x 480)	Widescreen (800 x 480)	Widescreen (1280 x 800)	Widescreen (1366 x 768)	Widescreen (1366 x 768)	–	Widescreen (1280 x 800)	Widescreen (1366 x 768)	Widescreen (1920 x 1080)	Widescreen (1920 x 1080)		**Resolution in pixels**
Processor	Intel Atom E3930 (2C / 2T; 1,3 (1,8) GHz; 2MB L2; HD 500 Graphics) Intel Atom E3940 (4C / 4T; 1,6 (1,8) GHz; 2MB L2; HD 500 Graphics)	Intel Celeron N2807 (2C / 2T, 1.58 (2.16) GHz, 1 MB cache, VT-x); Intel Celeron N2930 (4C / 4T, 1.83 (2.16) GHz, 2 MB cache, VT-x)						Intel Celeron G3902E (2C / 2T, 1.6 GHz, 2 MB cache); Intel Core i3 6102E (2C / 4T, 1.90 GHz, 3 MB cache); Intel Core i5-6442EQ (4C / 4T, 1.9 (2.7) GHz, 6 MB cache); Intel Xeon Processor E3-1505L v5 (4C / 8T, 2.0 (2.8) GHz, 8 MB cache)						**Processor**
Main memory	2 GB oder 4 GB	2 GB, 4 GB oder 8 GB; 512 KByte NVRAM optional						4 GB, 8 GB or 16 GB; 512 KByte NVRAM optional						**Main memory**
Free expansion slots	–	1 x PCIe (optional) max. 5 W	–					Up to 2 x PCIe cards (optional); (1 x PCIe x 4 and 1 x PCIe x 1); max. 6 W / 12 W	Up to 1 x PCIe card (optional); (1 x PCIe x 4); max. 6 W					**Free expansion slots**
Operating systems (preinstalled and activated)	Windows 10 Enterprise LTSB 2016, 64Bit, MUI	Windows Embedded Standard 7 (E / P), 32-bit / 64-bit; Windows 7 Ultimate MUI [1], 32-bit / 64-bit						Windows Embedded Standard 7 (E / P), 32-bit / 64-bit; Windows 7 Ultimate, MUI[1], 64-bit; Windows 10 Enterprise LTSB 2016						**Operating systems (preinstalled and activated)**
Packages / bundles	–	Packages with WinCC RT Advanced, WinCC V7 and WinAC RTX (F) / Windows 10 Enterprise						Packages with WinCC RT V7, WinCC RT Professional, WinCC RT Advanced, SIMATIC Software Controller						**Packages / bundles**
Power supply max. power consumption	DC 24 V; 20.4-28.8 V; max. 5 ms; on/off switch	DC 24 V DC; 20.4 ... 28.8 V; isolated / max. 10 ms (in acc. with NAMUR); On / Off switch						24 V DC; 19.2 ... 28.8 V; isolated / max. 15 ms (in acc. with NAMUR); On / Off switch	24 V DC; 19.2 ... 28.8 V; isolated / max. 20 ms (in accordance with NAMUR); or 100–240 V AC, 50 / 60 Hz; On / Off switch					**Power supply / max. power consumption**
MTBF backlighting	–	–	Up to 80,000 h[7]; dimmable from 0 to 100%				Up to 50,000 h[7]	–	Up to 80,000 h[7]; dimmable from 0 to 100%	Up to 50,000 h[7]; dimmable from 0 to 100%	Up to 30,000 h[7]; dimmable from 0 to 100%	Up to 30,000 h[7]; dimmable from 0 to 100%		**MTBF backlighting**
Drives														**Drives**
Mass storage	SSD 32 / 64 / 128 GB	CFast up to 16 GB (with external access); SSD 240 / 480 GB; HDD 320 GB (IPC227E only)						CFast 30 GB (with external access); SSD 240 / 480 GB; HDD 320 GB						**Mass storage**
Optical drives	–	–						–	Can optionally be connected through ext. drive via USB					**Optical drives**
Interfaces														**Interfaces**
Fieldbus	PROFINET RT over Ethernet							PROFINET RT via Ethernet						**Fieldbus**
Ethernet	2 or 3 x 10/100/1000 MBi/s (RJ45)	2 x 10 / 100 / 1000 Mbps (RJ45); teaming						3 x 10 / 100 / 1000 Mbps (RJ45); teaming						**Ethernet**
USB	2 x USB 3.0 or an additional 2 x USB 2.0	1 x USB 3.0, 3 x USB 2.0	Rear: 1 x USB 3.0, 2 x USB 2.0		Rear: 1 x USB 3.0, 3 x USB 2.0	Rear: 1 x USB 3.0, 3 x USB 2.0; front: USB 2.0 (Singletouch exclusive)		4 x USB 3.0	Rear: 4 x USB 3.0; Front: 1 x USB 3.0 (Singletouch exclusive)					**USB**
Serial / parallel	–	2 x RS 232 / RS 485 / RS 422 switchable in BIOS, optional	1 x RS 232 / RS 485 / RS 422 switchable in BIOS					2 x RS 232 / RS 485 / RS 422 switchable in the BIOS, optional						**Serial / parallel**
Graphics interface	1 x DisplayPort							2 x DisplayPort						**Graphics interface**
Monitoring / diagnostics functions														**Monitoring / diagnostics functions**
Basic functionality	Temperature; Watchdog; SSD; CMOS battery (alarm locally via SIMATIC IPC DiagBase software);	Temperature; watchdog; HDD; CFast; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)						Temperature; watchdog; HDD; CFast; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)						**Basic functionality**
Advanced functions / remote access	System monitoring: Operating hours counter for preventive maintenance, maintenance mode, networking (LAN), SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)							System monitoring: Operating hours counter for preventive maintenance, maintenance mode, networking (LAN), SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software) / remote access via Intel AMT Core i5 or higher and via SIMATIC IPC Remote Manager						**Advanced functions / remote access**
Ambient conditions														**Ambient conditions**
Degree of protection / EMC	Enclosure according to IP40 / EN 55022B; EN 61000-6-3; EN 61000-6-4; FCC A	IP65 (front) / EN 55022A; EN 61000-6-4; EN 61000-6-2; FCC A						IP20 in accordance with IEC 60529 / EN 61000-6-3; EN 61000-6-4; CISPR220 Class B; FCC Class A	IP65 (at the front) in accordance with IEC 60529 / EN 61000-6-4; CISPR220 Class B; FCC Class A; IP20 (at the rear)					**Degree of protection / EMC**
Vibration during operation[5]	5 ... 8.4 Hz: 3.5 mm; 8.4 ... 500 Hz: 9.8 m/s2	10 – 58 Hz: 0.0375 mm; 58 – 200 Hz: 9.8 m/s² (approx. 1 g) when operated with CFast / SSD						5 – 9 Hz: 3.5 mm; 9 – 500 Hz: 9.8 m/s² (approx. 1 g) when operated with CFast / SSD						**Vibration during operation**[5]
Shock load during operation[6]	150 m/s²; 11 ms (wall mounting)	150 m/s²; 30 ms (approx. 15 g) when operated with CFast/SSD	50 m/s²; 30 ms (approx. 5 g) when operated with CFast / SSD					150 m/s²; 11 ms (approx. 15 g) when operated with CFast / SSD	50 m/s²; 30 ms (approx. 5 g) when operated with CFast / SSD					**Shock load during operation**[6]
Relative humidity[8]	5-85% (no condensation)	5-85% (CFast/SSD); -80% (HDD) (no condensation)	5 – 85% at 25 °C (no condensation)					Up to 80% at 25 °C (no condensation)	Up to 85% at 30 °C (no condensation)					**Relative humidity**[8]
Ambient temperature in continuous operation at full processor load	0 – 50/55 °C	0 – 60 °C	0 – 50 °C		0 – 45 °C			0 – 55 °C	0 – 50 °C	0 – 45 °C	0 – 45 °C	0 – 45 °C		**Ambient temperature in continuous operation at full processor load**
Certification / EU directives	CE; cULus (508); WEEE / RoHS	CE; cULus (508); Marine approvals[25]; WEEE/RoHS; C-Tick	CE; cULus (508); ST: shipbuilding approvals for 7" / 9" / 12"[25]; MT: 12", 15", 19" in preparation + WEEE / RoHS, C-Tick					CE; cULus (508); ATEX / IECEx Cat 3G Zone 2, shipbuilding approvals[25]; WEEE / RoHS; C-Tick	CE; cULus (508); ATEX / IECEx Cat 3G Zone 2, shipbuilding approvals[25]; WEEE / RoHS; C-Tick					**Certification / EU directives**
Dimensions														**Dimensions**
Operator panel (W x H) Singletouch	–	–	214 x 158 mm	274 x 190 mm	330 x 241 mm	415 x 310 mm	483 x 337 mm	–	415 x 310 mm	483 x 337 mm	560 x 380 mm			**Operator panel (W x H) Singletouch**
Operator panel (W x H) Multitouch	–	–	–		315 x 227 mm	398 x 257 mm	464 x 294 mm	–	398 x 257 mm	464 x 294 mm	529 x 331 mm	585 x 363 mm		**Operator panel (W x H) Multitouch**
Installation dimensions (W x H x D) Singletouch	–	Basisgerät: ca. 191 x 100 x 60 mm	197 x 141 x 71 mm	251 x 166 x 71 mm	310 x 221 x 66 mm	396 x 291 x 76 mm	465 x 319 x 76 mm	Basic device: approx. 262 x 133 x 55.5 mm; Depth with 1 x PCIe / 2 x PCIe expansion: 85 mm / 105.3 mm	395 x 290 x 83 mm	464 x 318 x 83 mm	542 x 360 x 83 mm			**Installation dimensions (W x H x D) Singletouch**
Installation dimensions (W x H x D) Multitouch	–	–	–		299 x 211 x 76 mm	382 x 241 x 76 mm	448 x 278 x 76 mm	–	382 x 241 x 83 mm	448 x 278 x 83 mm	513 x 315 x 83 mm	569 x 347 x 83 mm		**Installation dimensions (W x H x D) Multitouch**
Base version (W x H x D)	approx. 85 x 85 x 41 mm							–						**Base version (W x H x D)**
Extended version (W x H x D)	approx. 85 x 104 x 41 mm							–						**Extended version (W x H x D)**

SIMATIC IPCs and Thin Clients for special requirements

SIMATIC Thin Client & Flat Panel

	SIMATIC Panel PC Ex OG	SIMATIC HMI Panel PC Ex NG		SIMATIC HMI Thin Client Ex NG		SIMATIC PRO Geräte			SIMATIC Industrial Thin Client				SIMATIC Industrial Flat Panel				
																	
General features	**15"/21,5" Multitouch**	**22" Touch**	**24" Touch**	**22" Touch**	**24" Touch**	**SIMATIC IPC477E PRO 15"/19"/22" Multitouch**	**SIMATIC IFP PRO 19"/22" Multitouch**	**SIMATIC ITC PRO 19"/22" Multitouch**	**12" Touch**	**15" Touch**	**19" Touch**	**22" Touch**	**12" Touch**	**15" Touch or Multitouch 15" Tasten**	**19" Touch or Multitouch (optional as Ethernetmonitor)**	**22" Touch or Multitouch (optional as Ethernetmonitor)**	**General features**
Resolution in pixels	15"; 4:3 (1024 x 768) 21,5"; 16:9 (1920 x 1080)	16:10 (1680 x 1050)	16:9 (1920 x 1080); 16:10 (1920 x 1200)	16:10 (1680 x 1050)	16:9 (1920 x 1080); 16:10 (1920 x 1200)	15": widescreen (1280 x 800) 19": widescreen (1366 x 768) 22": widescreen (1920 x 1080)	19": widescreen (1366 x 768) 22": widescreen (1920 x 1080)	19": Widescreen (1366 x 768) 22": Widescreen (1920 x 1080)	Widescreen (1280 x 800)	Widescreen (1280 x 800) MT (1366 x 768)	Widescreen (1366 x 768) MT (1366 x 768)	Widescreen (1920 x 1080) MT (1920 x 1080)	ST widescreen (1280 x 800)	ST widescreen (1280 x 800) MT widescreen (1920 x 1080)	ST widescreen (1366 x 768) MT widescreen (1920 x 1080)	ST widescreen (1920 x 1080) MT widescreen (1920 x 1080)	**Resolution in pixels**
Max. distance to computer	–	–	–	Unlimited via Ethernet		–	30 m	Unlimited via Ethernet					Standard: 5 m	Standard: 5 m; extended: 30 m	Standard: 5 m; extended: 30 m / unlimited as Ethernet monitor		**Max. distance to computer**
Processor	Intel Core i7-3517UE with 1.7 GHz	Intel Atom E3845		Intel Atom E3845		Intel Celeron 827E 1.4 GHz; 1.5 MB SLC or Intel Core i3-3217UE 1.6 GHz; 3 MB SLC or Intel Core i7-3517UE 1.7 (2.8) GHz; 4 MB SLC	–	Intel Celeron (1.2 GHz)					–				**Processor**
Main memory	4 GB or 8 GB RAM	4 GB RAM		4 GB RAM		1 GB, 2 GB, 4 GB or 8 GB; 512 KB NVRAM optional	–	–					–				**Main memory**
Operating systems (preinstalled and activated) / supported protocols	Windows 7 Ultimate MUI [1] / Windows Embedded Standard 7 P	Windows 7 Ultimate, Windows 7 Embedded		Win 10 Enterprise + Remote Firmware V5		Windows Embedded Standard 7 (E / P). 32-bit / 64-bit; Windows 7 Ultimate MUI [1], 32-bit / 64-bit Windows 10 Enterprise	–	Closed Linux with integrated communication protocols: Sm@rtAccess, RDP, VNC; SINUMERIK; WinCC-OA, Web (HTML5); Desigo, JAVA, CITRIX Client (possible restriction with MT usage)					–				**Operating systems (preinstalled and activated) / supported protocols**
Power supply / max. power consumption	DC 24 V: 4,6 A (6,9 A) [10]; AC 110 V: 1,1 A (1,7 A) [10]; AC 230 V: 0,6 A (0,8 A) [10]	DC 24 / AC 100 – 240V	DC 24 / AC 100 – 240V	DC 24 / AC 100 – 240V	DC 24 / AC 100 – 240V	DC 24 V (DC 19,2 – 28,8 V)	DC 24 V; +19,2 V – +28,8 V	DC 24 V / ca. 35 W	DC 24 V / ca. 28 W	DC 24 V / ca. 36 W	DC 24 V / ca. 32 W	DC 24 V / ca. 53 W	24 V DC; 19.2 ... 28.8 V, approx. 40 W; extended version additionally 100–240 V AC, 50 / 60 Hz				**Power supply / max. power consumption**
MTBF backlighting	Bis zu 50.000 h [7]							Up to 50.000 h [7]; dimmable from 0 – 100 %					Up to 50,000 h [7]; 10 to 100% dimming	Up to 80,000 h [7]; dimmable from 0 to 100%			**MTBF backlighting**
Drives																	**Drives**
Mass storage	SSD with 80 GB, 160 GB, 240 GB, 300 GB, 480 GB	32 GB SSD / 64 GB SSD / 128 GB SSD		64 GB SSD		CFast up to 16 GB / SSD 80 GB or 160 GB; CFast up to 16 GB (accessible from outside)	–	–					–				**Mass storage**
Ports																	**Ports**
Ethernet	2 x Ethernet 10 / 100 / 1000 Base Tx (Ex e) or FO 100 Base Fx 100 Mbit (Ex op is)	1 x GB LWL or 2 x 100 Mbit copper		1 x GB LWL or 2 x 100 Mbit copper		2 × 10 / 100 / 1000 Mbps (RJ45); teaming Fieldbus: PROFIBUS DP / MPI isolated; PROFINET RT via Ethernet (optional); PROFINET IRT (optional)	–	2x Ethernet 10 / 100 / 1000 Mbps (RJ45)	2x Ethernet 10 / 100 / 1000 Mbps (RJ45)				–				**Ethernet**
USB	1 x USB (Ex e), 3 x USB (Ex ia)	2 x USB (Ex ia) 1 x USB (Ex e)		2 x USB (Ex ia) 1 x USB (Ex e)		Rear: 4 x USB 3.0	Rear: 2 x USB 2.0	Rear: 4 x USB 2.0	Rear: 2 x USB 2.0 / MT: 4 x USB 2.0				Extended Version: 2 x USB 2.0 (at the rear)				**USB**
Serial / parallel	1 x RS 232 / RS 422 / RS 485 (Ex e)	1 x RS 232 (Ex e)		1 x RS 232 (Ex e)		1 x RS 232	–	–	–				–				**Serial / parallel**
Graphics interface	DVI out (Ex e)	–		–		1 x DVI, 1 x DisplayPort	1 x DVI, 1 x DisplayPort	–	–				1 x DVI-D; 1 x DisplayPort (partially 1 x Ethernet and 1 x DisplayPort)				**Graphics interface**
Ambient conditions																	**Ambient conditions**
Degree of protection	IP66 / 4X all-round	IP66 (at the front); IP65 (at the rear)				All-round IP65 protection / NEMA 4X		All-round IP65 protection / NEMA 4X	IP65 (front)				IP65 (front)				**Degree of protection**
EMV	EN 61000-6-2:2005 + AC:2005 EN 61000-6-4:2007 + A1:2011	EN 61000-6-2:2006; EN 61000-6-4: 2007		EN 61000-6-2:2006; EN 61000-6-4: 2007		EN 61000-6-4; CISPR 22 Class A; FCC Class A	EN 61000-6-2; EN 61000-6-4	EN 61000-6-2; EN 61000-6-4	CE; EN 61000-6-4				CE; EN 61000-6-4; EN 61000-6-2				**EMV**
Vibration during operation[5]	3 – 22 Hz: 1 mm; 22 – 500 Hz: 9,8 m/s² (1 g) [9]	5 bis 13,2 Hz: ±1 mm 13,2 bis 100 Hz: ±0,7 g		5 bis 13,2 Hz: ±1 mm 13,2 bis 100 Hz: ±0,7 g		5 – 8,4 Hz: 3,5 mm 8,4 – 200 Hz: 9,8 m/s² (1 g)	5 – 8,4 Hz: 3,5 mm 8,4 – 500 Hz: 9,8 m/s² (1 g)	5 – 8,4 Hz: 3,5 mm 8,4 – 500 Hz: 9,8 m/s² (1g)	10 – 58 Hz: 0,0375 mm; 58 – 200 Hz: 9,8 m/s² (1 g)				10 – 58 Hz: 0,0375 mm; 58 – 200 Hz: 9,8 m/s² (1 g)				**Vibration during operation**[5]
Shock load during operation[6]	150 m/s²; 11 ms; (15 g); 11 ms	–		–		50 m/s²; 30 ms	(15 g); 11 ms	(15 g); 11 ms	50 m/s² (5 g); 30 ms				150 m/s² (ca. 15 g); 11 ms				**Shock load during operation**[6]
Relative humidity[8]	> 95% at +65 °C (no condensation)	10 – 90% at +40 °C, no condensation				5 – 85% at 30 °C, no condensation [8]	10 – 90% at 30 °C, no condensation [8]	10 – 90% at 30 °C, no condensation [8]	5 – 85 % at 25 °C (no condensation)				95% at 25 °C (no condensation)				**Relative humidity**[8]
Ambient temp. in continuous operation at full processor load	–10 °C (opt. –40 °C) ... 65 °C	-20°C ... +60°C -30°C ... +50°C (with heating option)				0 – 45 °C	0 – 45 °C	0 – 45 °C	0 – 50 °C		0 – 45 °C		0 – 50 °C (partially up to 45 °C)				**Ambient temp. in continuous operation at full processor load**
Certification / EU directives	Gas: II 2 (1) G Ex e q [ia op is Ga] IIC T4 Gb; Staub: II 2 (1) D Ex tb [ia op is Da] IIIC T115 °C Db	IEC, ATEX Zonen 1, 21, 2, 22; CEC, NEC, CSA, TR-EAC KGS DNV / GL				CE, cULus, FCC, KC, EAC, RCM, Atex / IECEx (in preparation), cFMus, Marine	CE, cULus, FCC, RCM, KC, EAC, cFMus, shipbuilding	CE, cULus, FCC, RCM, KC, EAC, cFMus	CE; cULus; C-Tick; KCC; FM				CE; cULus / cULus Hazardous Location; partially or optionally: ATEX; C-Tick; Marine, Ex, KC				**Certification / EU directives**
Dimensions																	**Dimensions**
Operator panel (W x H) Singletouch in mm	–	660 x 475		660 x 475		–		–	330 x 241	415 x 310	483 x 337	560 x 380	330 x 241	416 x 298	483 x 337	560 x 380	**Operator panel (W x H) Single-touch in mm**
Operator panel (B x H) Multitouch in mm	15": 380 x 394 x 137 21,5": 553 x 458 x 141	–		–		15": 396 x 255; 19": 475 x 296; 22": 527 x 329	19": 475 x 296; 22": 527 x 329	19": 475 x 296; 22": 527 x 329	–	398 x 257	464 x 294	529 x 331	–	398 x 257	464 x 294	529 x 331	**Operator panel (W x H) Multi-touch in mm**
Installation dimensions Singletouch in mm (W x H x D)	–	615 x 435 x 110		615 x 435 x110		–		–	310 x 221 x 82	396 x 291 x 75	465 x 319 x 75	542 x 362 x 75	308 x 219 x 71,1	399 x 291 x 63	465 x 319 x 63	542 x 362 x 63	**Installation dimensions (W x H x D) Singletouch in mm**
Installation dimensions Multitouch in mm (W x H x D)	None installed	–		–		None installed; mounting on supporting arm or stand		None installed; mounting on supporting arm or stand	–	382 x 241 x 75	448 x 278 x 75	513 x 315 x 75	–	382 x 241 x 63	448 x 278 x 63	513 x 315 x 63	**Installation dimensions (W x H x D) Multitouch in mm**

[1] MUI (multi-language user interface); 5 languages (ENG, GER, FR, SP, IT) [5] GL, LRS, BV, DNV, ABS, Class NK [6] Optionally with daylight display [8] Panel PC only [9] Tested according to: IEC 60068-2-6 [6] Tested to: IEC 60068-2-27, IEC 60068-2-29 [7] With 24h continuous operation; depending on temperature [8] Tested to IEC 60068-2-78, IEC 60068-2-30, -60068-2-56 [9] According to EN 60068-2-6 and DNV Shipbuilding Approval Vibration Class A [10] In heating mode

	SIMATIC Basic IPC			SIMATIC Advanced IPC		SIMATIC High-end IPC				
	SIMATIC IPC377E	SIMATIC IPC327E	SIMATIC IPC347E	SIMATIC IPC547G		SIMATIC IPC647E	SIMATIC IPC847E	SIMATIC IPC627E	SIMATIC IPC677E	
						New 	New 	New 	New 	
General features	**Panel PC, 12", 15", 19"**	**Box PC**	**Rack PC, 19", 4HE**	**Rack PC, 19", 4HE short enclosure**	**Rack PC, 19", 4HE**	**Rack PC, 19", 2HE**	**Rack PC, 19", 4HE**	**Box PC**	**Panel PC, 15", 19" oder 22" Multitouch**	**General features**
Mounting/display resolution	Installation, VESA; 12": 1280 x 800 12" + 19": 1366 x 768	Wall and rail mounting	Ready for telescopic rails; for horizontal installation; 19" mounting bracket detachable from the outside	Ready for telescopic rails; for horizontal and vertical installation; 19" mounting bracket detachable from the outside; tower kit (optional)		Ready for telescopic rails; for horizontal installation; 19" mounting bracket detachable from the outside	Ready for telescopic rails; for horizontal and vertical installation; 19" mounting bracket detachable from the outside; tower kit (optional)	Wall mounting via enclosed mounting brackets, vertical installation via front / vertical installation kits (optional)	Built-in device for central structure 19", 22" and 24" Multitouch, 1920 x 1080 (Full HD)	**Mounting/display resolution**
Processor	Intel Celeron Quad Core N3160 (4C/4T, 1.6 GHz, up to 2.24 GHz, 2 MB Cache)		Intel Core i5-4570S (4C / 4T, up to 3,6 GHz, 6 MB Cache) Intel Pentium G3420 (2C / 2T, 3,2 GHz, 3 MB Cache)	Intel Xeon E3-1275 v5 (4C / 8T, 3,6 (4,0) GHz, 8 MB Cache, VT-x / -d, iAMT) [1] Intel Core i7-6700 (4C / 8T, 3,4 (4,0) GHz, 8 MB Cache, VT-x / -d, iAMT) Intel Core i5-6500 (4C / 4T, 3,2 (3,6) GHz, 6 MB Cache, VT-x / -d, iAMT) Intel Pentium G4400 (2C / 2T, 3,3 GHz, 3 MB Cache, VT-x / -d)		Intel Xeon E-2176G (6C / 12T, 3,7 (4,7) GHz, 12 MB Cache, VT-x/-d, iAMT) Intel Core i7-8700 (6C / 12T, 3,2 (4,6) GHz, 12 MB Cache, VT-x/-d, iAMT) Intel Core i5-8500 (6C / 6T, 3,0 (4,1) GHz, 9 MB Cache, VT-x/-d, iAMT) Intel Core i3-8100 (4C / 4T, 3,6 GHz, 6 MB Cache, VT-x/-d)		Core i7-8700 (6C/12T, 3.2(4.6)GHz, 12MB Cache, VT-d, iAMT) Core i3-8100 (4C/4T, 3.6GHz, 6MB Cache, VT-d) Celeron G4900 (2C/2T, 3.1GHz, 2MB Cache; VT-d)		**Processor**
Main memory	4 GB, 8 GB DDR3L-1600		2 GB, 4 GB, 8GB DDR3-1600 (configurable up to 16 GB); 2 x DIMM	From 4 GB DDR4-2133 SDRAM; 2 x DIMM, configurable up to 32 GB or 4 x DIMM [1]; configurable up to 64 GB [1] (only for mainboard with C236 chipset)		From 4 GB DDR4-2666 SDRAM; 4 x DIMM; configurable up to 64 GB; ECC optional		From 4 GB DDR4-2666 SDRAM; 4 x DIMM configurable up to 64 GB; Retentive memory: NVRAM 2 MB optional		**Main memory**
Free expansion slots	1x mPCIe (half-size); 1 x mSATA (full-size)		4 x PCI; 1 x PCIe x 16; 1 x PCIe x 8; 1 x PCIe x 1 (all 312 mm)	2 x PCI; 2 x PCIe x16; 1 x PCIe x8; 2 x PCIe x4 (all 312 mm)		4 x PCIe x16 oder 2 x PCI; 2 x PCIe x 16 or 2x PCI x16 (all 312 mm)	7 x PCI; 2 x PCIe x16 or 3 x PCI; 6 x PCIe x 16; 2 x PCIe x 4 (all 312 mm)	2 x PCI (185 mm) or 1 x PCIe x 16 (185 mm),1 x PCI (185 mm) or 1 x PCIe x 1 (185 mm),1 x PCIe x 4 (185 mm) or 2x PCI (240mm), 1x PCI (185mm), 1x PCIe x4 (185mm), 1x PCIe x16 (185mm)	2 x PCI (185 mm) or 1 x PCIe x 16 (185 mm),1 x PCI (185 mm) or 1 x PCIe x 1 (185 mm),1 x PCIe x 4 (185 mm)	**Free expansion slots**
Graphics	Intel HD Graphics 400 integrated in processor, max.1920 x 1200		Intel HD Graphics 4600 integrated in processor, Dynamic Video Memory up to 1.7 GB; max. resolution VGA / DVI-I: 1920 x 1200 / 60 Hz / 32-bit colors	Intel HD Graphics 510 / 530 / P530 integrated in the processor with dynamic video memory up to 1.7 GB; max. DisplayPort resolution: 4096 x 2304 / 60 Hz / 32-bit colors; DVI: 1920 × 1200 / 60 Hz / 32-bit colors; Graphics card: NVIDIA NVS 315 optional, dual-head: 2 x DVI-D or 2 x VGA; PCIe x 16, 1 GB; max. resolution (digital) 2560 x 1600 / 60 Hz / 32-bit color depth		Intel UHD Graphics 630 im Prozessor integrated in the processor with Dynamic Video Memory up to 32 GB; DisplayPort resolution: 4096 x 2304 / 60 Hz / 32-bit color depth; DVI: 1920 × 1200 / 60 Hz / 32-bit: Graphics card: NVIDIA Quadro P400 optional; Triple Head: 3 x mDP (3x DP / DVI-D/ VGA via Adapter), PCIe x 16, 2 GB; max. resolution (digital) 4096 x 2160 / 60 Hz / 32-bit color depth		On board Intel UHD Graphics 630 (Core i3, i7) Intel UHD Graphics 610 (Celeron) resolution: 4k		**Graphics**
Power supply / temporary voltage interruption	24 V DC (20.4 to 28.8 V); max. 10ms		AC: 100 – 240 V, 50 – 60 Hz / max. 17 ms	AC: 100 – 240V, 50 – 60 Hz / max. 20 ms (in acc. with NAMUR)	AC: 100 – 240 V, 50 – 60 Hz / max. 20 ms (in acc. with NAMUR); optional AC redundant: 100 – 240 V, 50 – 60 Hz / max. 20 ms	AC: 100 – 240 V; 50 – 60 Hz / max. 20 ms (in acc. with NAMUR); optional AC redundant: 100 – 240 V; 50 – 60 Hz / max. 20 ms		AC: 100 – 240 V; 50 – 60 Hz / max. 20 ms (in acc. with NAMUR); DC 24 V: 20,4 – 28,8 V		**Power supply/ temporary voltage interruption**
Operating system										**Operating system**
Installed and activated	Windows 7 Ultimate (64 Bit) MUI [1]			Windows 7 Ultimate (32/64-bit) MUI [1]; Windows 10 Enterprise 2015 LTSB (64-bit) MUI [1]; Windows 10 Enterprise 2016 LTSB (64-bit) MUI [1]; Windows Server 2008 R2 Standard Edition incl. 5 Clients (64-bit) MUI [1]; Windows Server 2012 R2 Standard Edition incl. 5 Clients (64-bit) MUI [1] Windows Server 2016 Standard Edition incl. 5 Clients (64-bit) MUI [1]		Windows 10 Enterprise 2016 LTSB (64-bit) MUI [1]; Windows Server 2016 Standard Edition incl. 5 Clients (64-bit) MUI [1]		Windows 10 Enterprise 2016 LTSB, 64-bit, MUI [1]		**Installed and activated**
Additional	–			Suited for Linux		Suited for Linux (in preparation); VMware (ESXi) Certification in preparation		–		**Additional**
Packages, bundles	Packages mit WinCC V7; WinCC RT Advanced			Packages mit WinCC V7; WinCC RT Advanced; WinCC RT Professional		Packages in preparation		Packages with WinCC V7; WinCC RT Advanced; WinCC RT Professional and WinAC RTX (F)		**Packages, bundles**
Drives konfigurationen										**Drives**
Hard disks	500 GB HDD		Installed internally: SATA 500 GB / 1 TB;	Installed internally: SATA 1 TB, 2 x 1 TB; RAID1 [1] (2x 1 TB Enterprise or 2x 2 TB Enterprise)	Installed internally or front-mounted in removable drive bay inserts: SATA 1 TB; 2 x 1 TB; RAID1 [1] (2 x 1 TB Enterprise or 2 x 2 TB Enterprise and optionally plus 2 TB as Hot Spare); RAID5 [1] (3 x 2 TB Enterprise optionally plus 2 TB as Hot Spare)	Installed internally or front-mounted in removable drive bay inserts: SATA 1 TB; 2 x 1 TB; RAID1 (2 x 1 TB Enterprise or 2 x 2 TB Enterprise); RAID1 configurations with Hardware RAID-controller and SAS HDD in preparation	Installed internally or front-mounted in removable drive bay inserts: SATA 1 TB; 2 x 1 TB; RAID1 (2 x 1 TB Enterprise or 2 x 2 TB Enterprise and optionally plus 2 TB as Hot Spare); RAID5 (3 x 2 TB Enterprise optionally plus 2 TB as Hot Spare) RAID1/5 configurations with Hardware RAID-controller and SAS HDD in preparation	1x HDD 2.5" SATA at least 320 GB SSD 2.5" SATA at least 480 GB internal; M.2 SSD NVMe at least 512 GB; RAID1 2x SSD 2.5"" at least 480 GB internal or in removable drive bay		**Hard disks**
Solid State Drive (SSD)	–		Installed internally: SATA 256 GB	Installed internally: SATA 240 GB; 480 GB; 2x 480GB; RAID1 [1] (2x 480GB)	Installed internally or front-mounted in removable drive bay inserts: SATA 240 GB; 480 GB; 2x 480 GB; RAID1 [1] (2 x 480 GB);	Installed internally or front-mounted in removable drive bay inserts: SATA 480 GB; 960 GB; 2x 480 GB; RAID1 (2 x 480 GB); Installed internally in M.2 Slot: NVMe 512 GB; 1024 GB;	Installed internally or front-mounted in removable drive bay inserts: SATA 480 GB; 960 GB; 2x 480 GB; RAID1 (2 x 480 GB); Installed internally in M.2 Slot via adapter card: NVMe 512 GB; 1024 GB;			**Solid State Drive (SSD)**
Optical drives	–		DVD ± R / RW (5,25")	–	DVD ± R / RW (Slimline)	–				**Optical drives**
Mounting locations	1x mSATA (full-size)		4 (internal: 1 x 3.5", front: 3 x 5.25")	2 (internal: 2 x 3,5" / 2,5")	4 (front 3x 5,25" for internal 3 x 3,5"/2,5"; 1 x Slimline for ODD) or 5 (front 1 x 5,25"; 3 x low-profile removable drive bay inserts; 1 x Slimline for ODD) or 5 (front: 4 x low-profile removable drive bay inserts; 1 x Slimline for ODD)	3 (internal: 2 x 3,5"/2,5"; 1x 2,5") or 3 (front: 2 x low-profile removable drive bay inserts; 1 x 2,5" internal)	4 (front 3x 5,25" for internal 3 x 3,5"/2,5"; 1 x Slimline for ODD) or 5 (front 1 x 5,25"; 3 x low-profile removable drive bay inserts; 1 x Slimline for ODD) or 5 (front: 4 x low-profile removable drive bay inserts; 1 x Slimline for ODD)	–		**Mounting locations**

	SIMATIC Basic IPC			SIMATIC Advanced IPC		SIMATIC High-end IPC				
Ports										**Ports**
Fieldbus	–		PROFINET RT via Ethernet	PROFINET RT via Ethernet		PROFINET RT via Ethernet		PROFINET RT via Ethernet		**Fieldbus**
Ethernet	2 x 10 / 100 / 1000 MB / s (RJ45)		2 x Realtek: 10 / 100 / 1000 MB / s (RJ45)	2 x Intel: 10 / 100 / 1000 MB / s (RJ45); teaming		3 x Intel: 10 / 100 / 1000 MB / s (RJ45); teaming		3x Gigabit Ethernet (IE/PN), RJ45 (thereof 2x Intel WGi210IT teaming)		**Ethernet**
USB	2 x USB 3.0 2 x USB 2.0	2 x USB 3.0 4 x USB 2.0	USB 3.0: 2 x at the rear; USB 2.0: 2 x at the rear; 2 x at the front; 1 x internal	USB 3.0: 2 x at the front; 4 x at the rear [1] or 2 x at the rear USB 2.0: 4 x at the rear; 1 x internal [1]		USB 3.1: 6 x at the rear (thereof 2x Type C); 1 x internal; USB 3.0: 2 x at the front		4 x USB 3.1 Gen.2 Type A 2x USB 3.1 Gen.2 Type C		**USB**
Serial / parallel	2 x COM (RS232); 2 x COM (RS232 / 485 / 422)	4 x COM (RS232); 2 x COM (RS232 / 485 / 422)	1 x COM1 (V.24); 1 x COM2 (V.24)	1 x COM1 (V.24); 1 x COM2 (V.24) (optional); 1 x LPT (optional)		1 x COM1 (V.24); 1 x COM2 (V.24) (optional)		1 x COM1		**Serial / parallel**
Graphics interface / DVI / DisplayPort	1 x DP, 1 x VGA		1 x VGA / 1 x DVI-D	1 x DVI-D / 2 x DisplayPort V1.2 [1] or 1 x DisplayPort V1.2; 2 x VGA or 2 x DVI-D via PCIe graphics card (optional)		1 x DVI-D / 2 x DisplayPort V1.2; 3 x DisplayPort 1.4 / VGA / DVI-D via PCIe graphics card (optional)		1 x DVI-D / 2 x DisplayPort (Triple Display)		**Graphics interface / DVI / DisplayPort**
Legacy interfaces	–		2 x PS / 2	2 x PS / 2		–		–		**Legacy interfaces**
Audio	1 x Audio out		1 x Line In; 1 x Line Out; 1 x Mic.	1 x Line In; 1 x Line Out; 1 x Mic.		1 x Mic. / Line Out		–		**Audio**
Monitoring / diagnostics functions										**Monitoring / diagnostics functions**
Basic functionality	–			Temperature; fan; watchdog; HDD; RAID; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)		Temperature; fan; watchdog; HDD; RAID; SSD; CMOS battery; redundant power supply; (alarm locally by means of SIMATIC IPC DiagBase software)		Temperature; fan; watchdog; HDD; SSD; M.2; RAID; CMOS-battery (alarm locally by means of SIMATIC IPC DiagBase software)		**Basic functionality**
Advanced functions	–			Temperature; fan; watchdog; HDD; RAID; SSD; CMOS battery System / Ethernet monitoring; Operating hours counter; Communication via Ethernet; SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)		Temperature; fan; watchdog; HDD; RAID; SSD; CMOS battery; redundant power supply; System / Ethernet monitoring; Operating hours counter; Communication via Ethernet; SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)		Temperature; fan; watchdog; hard drives (SMART) System / Ethernet monitoring; Operating hours counter; Communication via Ethernet; SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)		**Advanced functions**
Remote access	–			Via Intel Active Management Technology (iAMT) (at Core i5/i7 and Xeon) and SIMATIC IPC Remote Manager		Via Intel Active Management Technology (iAMT) (at Core i5/i7 and Xeon) and SIMATIC IPC Remote Manager		Via Intel Active Management Technology (iAMT) 9.0 (Core i7) and SIMATIC IPC Remote Manager		**Remote access**
Front LEDs	POWER; HDD			POWER; HDD; TEMP; FAN; HDD ALARM 0 / 1 / 2 / 3		POWER; HDD; ETHERNET 1 / 2 / 3; WATCHDOG; TEMP; FAN; HDD 0 / 1 ALARM	POWER; HDD; ETHERNET 1 / 2 / 3; WATCHDOG; TEMP; FAN; HDD 0 / 1 / 2 / 3 ALARM	1 x Power; 3 x Users		**Front-LEDs**
Ambient conditions										**Ambient conditions**
Degree of protection	IP65 front, IP40 rear	IP40	IP20 front; IP20 rear	IP30 front; IP20 rear		IP41 front; IP20 rear		IP20	IP65 front; IP20 rear	**Degree of protection**
Protection class	Protection class I according to IEC 61140			Protection class I according to IEC 61140		Protection class I according to IEC 61140				**Protection class**
Vibration during operation [5]	10 – 58 Hz: 0,075 mm; 58 – 200 Hz: 9,8 m/s²		–	20 – 58 Hz: 0.015 mm; 58 – 200 Hz: 2 m/s² (approx. 0.2 g)		10 – 58 Hz: 0,0375 mm; 58 – 500 Hz: 5 m/s² (approx. 0,5 g)		10 – 58 Hz: 0,075 mm; 58 – 500 Hz; 9,8 m/s² (approx. 1 g)		**Vibration during operation**
Shock load during operation [6]	150 m/s² (approx. 15 g), 11 ms		–	9.8 m/s²; 20 ms (approx. 1 g)		50 m/s²; 30 ms (approx. 5 g)				**Shock load during operation**
Relative humidity [8]	5 – 85% at 30 °C (no condensation)		5 – 80% at 25 °C (no condensation)	5 – 80% at 25 °C (no condensation)		5 – 85 % at 30 °C (no condensation)		5 – 80 % bei 25 °C (no condensation)		**Relative humidity**
Ambient temperature in operation	0 – 45°C at full processor power (Restrictions see manual)	0 – 45°C at full processor power (Restrictions see manual)	5 – 40 °C at full processor performance	0 – 40 °C at full processor performance (see manual for limitations)		0 – 50 °C at full processor performance (see manual for limitations)		55 °C / 50 °C / 5 – 45 °C (10 watts to PCI / 20 watts to PCI / full expansion)	5 – 45 °C (at full capacity)	**Ambient temperature in operation**
Electromagnetic compatibility (EMC)										**Electromagnetic compatibility (EMC)**
Emitted interference	IEC 61000-6-4; CISPR 22:2004 Class A; FCC Class A		IEC 61000-6-4; CISPR 22; FCC Class A; EN 61000-3-2 Class D; EN 61000-3-3	EN 61000-6-3; EN 61000-6-4; CISPR 22 / EN 55022 Class B; FCC Class A; EN 61000-3-2 Class D; EN 61000-3-3		EN 61000-6-3; EN 61000-6-4; CISPR 22 Class B / EN 55032 Class B; FCC Class A; EN 61000-3-2 Class D; EN 61000-3-3		Technical data still pending	Technical data still pending	**Emitted interference**
Approvals / directives										**Approvals / directives**
Safety	IEC 60950-1			IEC 60950-1; EN 60950-1; UL 60950-1; CSA C22.2 No. 60950-1-07		IEC 61010-2-201; EN 61010-2-201; UL 61010-2-201; CSA C22.2 No 61010-2-201		Technical data still pending	Technical data still pending	**Safety**
CE Mark / EU Directives, Certification	CE for use in industrial sectorh; cULus (UL 60950); KCC; EAC; FCC; BSMI		CE for use in industrial sector; cULus (UL 60950);RoHS; C-Tick; BSMI; KCC; EAC; FCC	CE for use in residential, commercial and industrial sector; cULus (UL 60950); RoHS; KC; C-Tick; BIS; EAC		CE for use in residential, commercial and industrial sector; cULus (UL 61010-2-201); RoHS; C-Tick; EAC	CE for use in residential, commercial and industrial sector; cULus (UL 61010-2-201); RoHS; C-Tick; EAC	Technical data still pending	Technical data still pending	**CE Mark / EU Directives, Certification**
Dimensions and weight										**Dimensions and weight**
Installation dimensions (W x H x D) in mm Operator panel (B x H) in mm	12": 302 x 208 x 89 (320 x 226) 15": 388 x 240 x 89 (416,5 x 298) 19": 455 x 279 x 89 (483 x 337)	254 x 140 x 75	430 x 177 x 463	434 x 177 x 356	434 x 177 x 446	430 x 88 x 448	430 x 170 x 448	312 x 301 x 90 (incl. mounting rail)	19": 464 x 294 x 115; 22": 529 x 331 x 115; 24": 585 x 362 x 115	**Installation dimensions (W x H x D) in mm Operator panel (B x H) in mm**
Weight	> 3,6 kg	2,0 kg	from 13 kg	from 15 kg		from 16 kg	from 16 kg	approx. 6 kg	approx. 15 kg	**Weight**

[1] MUI (multi-language user interface); 5 languages (ENG, GER, FR, SP, IT) [2] GL, LRS, BV, DNV, ABS, Class NK [5] Tested according to: IEC 60068-2-6 [6] Tested according to: IEC 60068-2-27 [8] Tested according to: IEC 60068-2-78, IEC 60068-2-30 [11] Only for mainboard with C236 chipset

Specifications subject to change without prior notice

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