

## PC-based Automation

### Panel PC

#### Introduction

#### Overview



SIMATIC Panel PCs are suitable thanks to their high industrial compatibility for use in control cabinets, consoles and control panels, as well as directly on the machine. Typical areas of application can be found in both factory and process automation.

There is a broad range of robust, high-performance SIMATIC Panel PCs available for different requirements.

#### **Shared industrial functionality**

- High-quality components and modules with a high MTBF (mean time between failure), which also ensure 24-hour operation in the extended temperature range
- High swing/shock capacity of the devices through special hard-disk suspensions, locked connectors and card retainers
- Rugged housing model with high electromagnetic compatibility (EMC) and integrated industrial power supplies (also in accordance with NAMUR)
- Service-friendly device design
- Bright, brilliant displays in different sizes from 7" to 22"
- Rugged fronts protected from dust, humidity and chemical substances (front-side IP65 degree of protection)

#### **SIMATIC IPC277: The Panel PC with optimized performance – maintenance-free and compact with displays from 7"**

- High degree of flexibility for selecting rugged widescreen fronts from 7" to 19" for a more freely configurable display area
- High resolution, large viewing angle, and up to 100% dimmable backlighting for a brilliant display with optimized power consumption
- Absolutely maintenance-free due to the use of CompactFlash/CFast or SSD as mass storage and fanless operation up to 50 °C ambient temperature
- Maximum industrial functionality due to non-volatile retentive memory (option)
- Ready-to-use embedded bundles with visualization and/or control software

#### **SIMATIC IPC477: The powerful embedded Panel PC – maintenance-free with versatile configuration**

- Compact design
- High performance with highly compact design and ruggedness
- Flexible expansion using a PCIe I/O card (optional)
- No rotating parts (without fan and hard disk)
- High security due to use of the operating system
- Windows Embedded Standard 7
- Ready-to-use devices with optionally pre-installed software
- HMI: Innovative HMI software WinCC RT Advanced (inc. logging and recipes)
- Software Controller: with real-time capable software PLC
- Retentive memory onboard (NV-RAM, can be used with software controller)
- Available as PRO version (all-round IP65 degree of protection) with multi-touch

#### **SIMATIC IPC677D: The high-end Panel PC – with maximum performance, functional scope and expansion capability**

- Rugged, expandable industrial PC with choice of front panels
- Rugged design for industrial use
- Complete PC openness
- Optional PROFIBUS or PROFINET onboard
- All processors with Dual-Core

**Technical specifications**

Article number	<b>6AV7882-0...0-...0</b> SIMATIC IPC277E	<b>6AV7230-0...-....</b> SIMATIC IPC377E	<b>6AV7241-.....-....</b> SIMATIC IPC477E	<b>6AV7260-.....-....</b> SIMATIC IPC677D
<b>Installation type/mounting</b>				
Mounting		Panel mount and VESA, horizontal and vertical		For horizontal and vertical mounting
Design	Panel PC, built-in unit	Panel PC, built-in unit	Panel PC, built-in unit	Panel PC, built-in unit
maximum permissible installation angle +/-	45°			20°
<b>Supply voltage</b>				
Type of supply voltage	24 V DC	24 V DC	100/240 V AC (autorange) 50/60 Hz; optional 24 V DC	100/240 V AC (autorange); 24 V DC
<b>Line frequency</b>				
• Rated value 50 Hz			Yes	Yes
• Rated value 60 Hz			Yes	Yes
<b>Mains buffering</b>				
• Mains/voltage failure stored energy time	20 ms	10 ms		10 ms
<b>Processor</b>				
Processor type	Intel Celeron N2807 / N2930	Intel Celeron N3160	Celeron G3902 (2C/2T, 1.6 GHz, 2 MB Cache); Core i3-6102E (2C/4T, 1.9 GHz, 3 MB Cache); Core i5-6442EQ (4C/4T, 1.9 (2.7) GHz, 6 MB Cache, iAMT); Xeon E3-1505L v5 (4C/8T, 2.0 (2.8) GHz, 8 MB Cache, iAMT)	Celeron G1820TE (2C/2T, 2.2 GHz, 2 MB Cache); Core i3-4330TE (2C/4T, 2.4 GHz, 4 MB Cache); Xeon E3-1268L v3 (4C/8T, 2.3 (3.3) GHz, 8 MB Cache, AMT)
Chipset				Intel DH82C226 PCH
<b>Graphic</b>				
Graphics controller			Intel HD graphics controller	Intel HD graphics controller P4600 GT2 (Xeon, Core i3); Intel HD graphics controller (Celeron)
<b>Drives</b>				
Optical drives			possible as external drive via USB	DVD±R±RW combi-drive, optional
Hard disk		500 GB HDD	2.5" SATA hard disk, at least 320 GB	3.5" SATA ≥ 500 GB, optional: 3.5" SATA ≥ 1 TB; RAID1 2x 2.5" SATA ≥ 320 GB; solid-state drive (SSD) ≥ 240 GB; all hard disk drives within the enclosure are vibration-damped; RAID1 2x 2.5" SATA ≥ 320 GB byte in removable drive bay
SSD	Yes; ≥ 80 GB optional	Yes; 256 GB SSD	Yes; 1x 80 GB, 1x 240 GB SSD, 1x 480 GB SSD	Yes; ≥ 240 GB optional
<b>Memory</b>				
Type of memory	DDR3L	DDR3L	DDR4 SO-DIMM	DDR3 1600 DIMM
Main memory	2 / 4 / 8 GB	4 GB, 8 GB	4 GB to 16 GB, ECC optional	2 / 4 / 8 / 16 GB; ECC optional
<b>Data areas and their retentivity</b>				
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional		512 kbyte; 128 KB can be stored in the buffer time; optional	2 Mbyte; 128 KB can be stored in the buffer time; optional
<b>Hardware configuration</b>				
<b>Slots</b>				
• free slots		1x mPCIe (half-size), 1x mSATA (full-size)	1x PCIe (slot with card retainer), 1x slot for CFAST card	2x PCI; optional: 1x PCI & 1x PCIe (x16); 2x PCIe (x4, x16); with card retainer

## PC-based Automation

### Panel PC

#### Introduction

#### Technical specifications (continued)

Article number	6AV7882-0...0-...0	6AV7230-0...-....	6AV7241-.....-....	6AV7260-.....-....
	SIMATIC IPC277E	SIMATIC IPC377E	SIMATIC IPC477E	SIMATIC IPC677D
<b>Interfaces</b>				
PROFIBUS/MPI				Optionally onboard, isolated, max. 12 Mbit/s, compatible with CP 5622
Number of industrial Ethernet interfaces		2; 2x RJ45 (independent)	3; 3x Ethernet (RJ45)	2; 2x RJ45 (independent)
Number of PROFINET interfaces				3; Optional
USB port	1x USB 3.0 / 3x USB 2.0 (7"/9": 2x USB 2.0)	2x USB 2.0, 2x USB 3.0 (high current)	4x USB 3.0	4x USB 3.0
Connection for keyboard/mouse serial interface	USB / USB		USB / USB	USB / USB
parallel interface	1x COM (1x RS 232 / 422 / 485), selectable in the BIOS		Without / 2x COM (RS 232 / 422 / 485), selectable in the BIOS	1x COM1 (RS 232), optional: 1x COM2 (RS 232)
				optional LPT1
<b>Video interfaces</b>				
• Graphics interface	1x DisplayPort	1x DisplayPort, 1x VGA	2x DisplayPort	1x DisplayPort and 1x DVI-I; 1x VGA via adapter cable (optional)
<b>Industrial Ethernet</b>				
• Industrial Ethernet interface	Onboard, 2x 10 / 100 / 1000 Mbit, RJ45	2 x Ethernet (RJ45)	3x Ethernet (RJ45)	Onboard, 2x 10 / 100 / 1000 Mbit, RJ45
- 100 Mbps	Yes	Yes		Yes
- 1000 Mbps	Yes	Yes	Yes	Yes
<b>Protocols</b>				
<b>Protocols (Ethernet)</b>				
• TCP/IP		Yes		
<b>Integrated Functions</b>				
<b>Monitoring functions</b>				
• Temperature monitoring	Yes	Yes		Yes
• Watchdog	Yes	Yes	Yes	Yes
• Status LEDs	No	POWER, HDD		Yes
• Fan	No	No		Yes
• Monitoring function via network	Optional			Optional
<b>EMC</b>				
<b>Interference immunity against discharge of static electricity</b>				
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact; ±8 kV air (to IEC 1000-4-2; ESD)		±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
• Interference immunity against discharge of static electricity acc. to IEC 61000-4-2				
- Test voltage at air discharge		8 kV		
- Test voltage at contact discharge		6 kV		
<b>Interference immunity against high-frequency electromagnetic fields</b>				
• Interference immunity against high frequency radiation	10 V/m, 80 MHz to 2 GHz, 80 % AM acc. to IEC 61000-4-3; 3 V/m, 2 GHz to 2.7 GHz, 80 % AM acc. to IEC 61000-4-3; 10 V, 10 kHz to 80 MHz, 80 % AM acc. to IEC 61000-4-6	10 V/m for 80 ... 1 000 MHz, 80 % AM according to IEC 61000-4-3; 3 V/m for 1.4 ... 6 GHz, 80 % AM according to IEC 61000-4-3		10 V/m for 80 - 1000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6

## Technical specifications (continued)

Article number	6AV7882-0...0-...0	6AV7230-0...-...-...	6AV7241-...-...-...-...	6AV7260-...-...-...-...
	SIMATIC IPC277E	SIMATIC IPC377E	SIMATIC IPC477E	SIMATIC IPC677D
<b>Interference immunity to cable-borne interference</b>				
• Interference immunity on supply cables	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)		±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
• Interference immunity on signal cables >30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m	±2 kV acc. to IEC 61000-4-4, burst; ±2 kV acc. to IEC 61000-4-5, surge		±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m	±1 kV acc. to IEC 61000-4-4, Burst		±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m
<b>Interference immunity against voltage surge</b>				
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric	±2 kV acc. to IEC 61000-4-5, surge asymmetric		±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric	±1 kV acc. to IEC 61000-4-5, surge symmetric		±1 kV acc. to IEC 61000-4-5, surge symmetric
<b>Interference immunity to magnetic fields</b>				
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8		100 A/m; to IEC 61000-4-8
<b>Emission of conducted and non-conducted interference</b>				
• Interference emission via line/AC current cables	Noise emission: EN 61000-6-4:2007 +A1:2011 (industrial environments), CISPR 22 Class B, FCC Class A			EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
<b>Degree and class of protection</b>				
IP (at the front)	IP65	IP65	IP65	IP65
IP (rear)	IP20	IP40	IP20	IP20
<b>Standards, approvals, certificates</b>				
CE mark	Yes	Yes	Yes; CE marking / EC Declaration of Conformity	Yes
CSA approval			Yes	
UL approval	Yes	Yes	Yes	Yes
• UL 508	Yes		Yes	Yes
cULus	Yes	Yes	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes	Yes	Yes
KC approval	Yes		Yes	Yes
EAC (formerly Gost-R)		Yes		
FCC	Yes	Yes	Yes	Yes
EMC	CE, EN 61000-6-4:2007 +A1:2011, EN 61000-6-2:2005		CE, EN 61000-6-4; CISPR 22:2004 Class A; FCC Class A	CE, EN 61000-6-4:2007, EN 61000-6-2:2005
Dust protection		Protection against foreign bodies > 1 mm		
<b>Marine approval</b>				
• Germanischer Lloyd (GL)	Yes; 7", 9", 12" ST; 12", 15", 19" MT			
• American Bureau of Shipping (ABS)	Yes; 7", 9", 12" single-touch			
• Bureau Veritas (BV)	Yes; 7", 9", 12" single-touch			
• Det Norske Veritas (DNV)	Yes; 7", 9", 12" ST; 12", 15", 19" MT			
• Lloyds Register of Shipping (LRS)	Yes; 7", 9", 12" ST; 12", 15", 19" MT			
• Nippon Kaiji Kyokai (Class NK)	Yes; 7", 9", 12" single-touch			

## PC-based Automation

### Panel PC

#### Introduction

#### Technical specifications (continued)

Article number	6AV7882-0...0-...0 SIMATIC IPC277E	6AV7230-0...-... SIMATIC IPC377E	6AV7241-...-...-... SIMATIC IPC477E	6AV7260-...-...-... SIMATIC IPC677D
<b>Ambient conditions</b>				
<b>Ambient temperature during operation</b>				
• Ambient temperature during operation	0 °C to 50 °C	0 to +45°C	0 to +45°C	+5 °C to +45 °C with full configuration
<b>Relative humidity</b>				
• Relative humidity	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)	5% - 80% at 25 °C	Tested according to IEC 60068-2-78, IEC 60068-2-30: 5% to 80% at 25 °C (no condensation)
<b>Vibrations</b>				
• Vibration resistance during operation acc. to IEC 60068-2-6	Tested according to IEC 60068-2-6: 5 Hz to 8.4 Hz: 3.5 mm, 8.4 Hz to 500 Hz: 9.8 m/s <sup>2</sup>	Tested according to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm; 58 Hz to 500 Hz 9.8 m/s <sup>2</sup> (1g)	IEC 60068-2-6; 5 Hz to 9 Hz: 3.5 mm; 9 Hz to 500 Hz: 9.8 m/s <sup>2</sup> (with SSD or CFast); 10 Hz to 58 Hz: 0.0375 mm; 58 Hz to 200 Hz: 4.9 m/s <sup>2</sup> (hard disk)	Tested according to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm; 58 Hz to 500 Hz 9.8 m/s <sup>2</sup> (1g)
<b>Shock testing</b>				
• Shock load during operation	Tested according to IEC 60068-2-27: 50 m/s <sup>2</sup> , 30 ms	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s <sup>2</sup> , 11 ms; with HDD: 9.8 m/s <sup>2</sup> , 20 ms	IEC 60068-2-27; 150 m/s <sup>2</sup> , 11 ms (without hard disk); 50 m/s <sup>2</sup> , 30 ms (with hard disk)	Tested to DIN IEC 60068-2-29: 50 m/s <sup>2</sup> (5 g), 30 ms, 100 shocks
<b>Operating systems</b>				
Operating system	Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit	Windows 7 Ultimate (Multi-Language), 64-bit; Windows 10 Enterprise 2016 LTSP, 64-bit	Windows 7 Ultimate (Multi-Language) 64-bit, Windows Embedded Standard 7 E/P 32-bit / 64-bit, Windows 10	Windows 7 Ultimate, 32-bit/64-bit, MUI; Windows Embedded Standard 7 P, 32-bit, MUI; Windows 10 Enterprise 2015 or 2016 LTSP, 64-bit, MUI
pre-installed operating system without operating system	Yes Yes	Yes Yes	Yes Yes	Yes Yes
<b>pre-installed operating system</b>				
• Windows 7	Yes; Ultimate 32 bits or 64 bits		Yes; Ultimate 64 bit	Yes; Ultimate 32 bits or 64 bits
• Windows 10 IoT Enterprise	Yes; Windows 10 Enterprise 2016 LTSP, 64-bit, MUI		Yes; Windows 10 IoT Enterprise 2016 LTSP (64-bit) MUI	Yes; Windows 10 Enterprise 2015 or 2016 LTSP, 64-bit, MUI
<b>Software</b>				
SIMATIC Software	Optional package with SIMATIC WinCC or WinAC RTX		Optionally with pre-installed SIMATIC WinCC RT Advanced / Software Controller CPU 1500S software bundle	Optional package with SIMATIC WinCC or WinAC RTX

#### More information

Additional information is available on the Internet at:

<http://www.siemens.com/simatic-panel-pc>

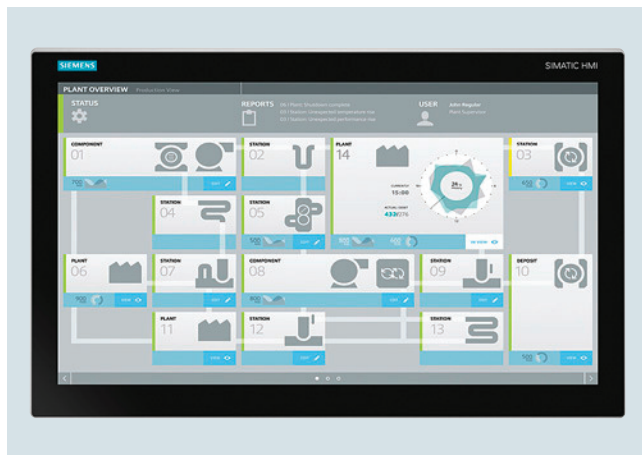
#### Note:

Do you need a specific modification or extension to the products described here? Then refer to "Customized Automation". There you will find information about additional and generally available sector-specific products as well as options for customer-specific modification and adaptation.

Examples are:

- Specific front panels for SIMATIC Panel PC, e.g. honing oil-resistant or with lateral function/movement keys
- SIMATIC HMI Net Panel with 46" large-scale display

## Overview


**SIMATIC IPC277E: The Panel PC with optimized performance – maintenance-free and compact with displays from 7"**

The SIMATIC IPC277E Nanopanel PC is a flexible embedded industrial PC with rugged and durable displays.

Technologically it is based on the IPC227E Nanobox PC and thus offers maximum industrial functionality for flexible use even under harsh conditions – all without the need for maintenance.

The Panel PC is characterized by modern interfaces and a high degree of flexibility in the selection of the display. The latest Intel Dual-Core and Quad-Core processors ensure excellent performance here for visualization and control tasks.

## Technical specifications

Article number	<b>6AV7882-0...0-...0</b> SIMATIC IPC277E
<b>Installation type/mounting</b>	
Design	Panel PC, built-in unit
maximum permissible installation angle +/-	45°
<b>Supply voltage</b>	
Type of supply voltage	24 V DC
<b>Mains buffering</b>	
• Mains/voltage failure stored energy time	20 ms
<b>Processor</b>	
Processor type	Intel Celeron N2807 / N2930
<b>Drives</b>	
SSD	Yes; ≥ 80 GB optional
<b>Memory</b>	
Type of memory	DDR3L
Main memory	2 / 4 / 8 GB
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional
<b>Interfaces</b>	
USB port	1x USB 3.0 / 3x USB 2.0 (7"/9": 2x USB 2.0)
Connection for keyboard/mouse serial interface	USB / USB 1x COM (1x RS 232 / 422 / 485), selectable in the BIOS
<b>Video interfaces</b>	
• Graphics interface	1x DisplayPort
<b>Industrial Ethernet</b>	
• Industrial Ethernet interface	Onboard, 2x 10 / 100 / 1000 Mbit, RJ45
- 100 Mbps	Yes
- 1000 Mbps	Yes
<b>Integrated Functions</b>	
<b>Monitoring functions</b>	
• Temperature monitoring	Yes
• Watchdog	Yes
• Status LEDs	No
• Fan	No
• Monitoring function via network	Optional

## PC-based Automation

### Panel PC

#### SIMATIC IPC277E

#### Technical specifications (continued)

Article number	<b>6AV7882-0...0-...0</b> SIMATIC IPC277E
<b>EMC</b>	
<b>Interference immunity against discharge of static electricity</b>	
<ul style="list-style-type: none"> <li>Interference immunity against discharge of static electricity</li> </ul>	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
<b>Interference immunity against high-frequency electromagnetic fields</b>	
<ul style="list-style-type: none"> <li>Interference immunity against high frequency radiation</li> </ul>	10 V/m, 80 MHz to 2 GHz, 80 % AM acc. to IEC 61000-4-3; 3 V/m, 2 GHz to 2.7 GHz, 80 % AM acc. to IEC 61000-4-3; 10 V, 10 kHz to 80 MHz, 80 % AM acc. to IEC 61000-4-6
<b>Interference immunity to cable-borne interference</b>	
<ul style="list-style-type: none"> <li>Interference immunity on supply cables</li> <li>Interference immunity on signal cables &gt;30m</li> <li>Interference immunity on signal cables &lt; 30m</li> </ul>	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric ±2 kV acc. to IEC 61000-4-5, surge, length > 30 m ±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m
<b>Interference immunity against voltage surge</b>	
<ul style="list-style-type: none"> <li>asymmetric interference</li> <li>symmetric interference</li> </ul>	±2 kV acc. to IEC 61000-4-5, surge asymmetric ±1 kV acc. to IEC 61000-4-5, surge symmetric
<b>Interference immunity to magnetic fields</b>	
<ul style="list-style-type: none"> <li>Interference immunity to magnetic fields at 50 Hz</li> </ul>	100 A/m; to IEC 61000-4-8
<b>Emission of conducted and non-conducted interference</b>	
<ul style="list-style-type: none"> <li>Interference emission via line/AC current cables</li> </ul>	Noise emission: EN 61000-6-4:2007 +A1:2011 (industrial environments), CISPR 22 Class B, FCC Class A
<b>Degree and class of protection</b>	
IP (at the front)	IP65
IP (rear)	IP20

Article number	<b>6AV7882-0...0-...0</b> SIMATIC IPC277E
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes
<ul style="list-style-type: none"> <li>UL 508</li> </ul>	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
FCC	Yes
EMC	CE, EN 61000-6-4:2007 +A1:2011, EN 61000-6-2:2005
<b>Marine approval</b>	
<ul style="list-style-type: none"> <li>Germanischer Lloyd (GL)</li> <li>American Bureau of Shipping (ABS)</li> <li>Bureau Veritas (BV)</li> <li>Det Norske Veritas (DNV)</li> <li>Lloyds Register of Shipping (LRS)</li> <li>Nippon Kaiji Kyokai (Class NK)</li> </ul>	Yes; 7", 9", 12" ST; 12", 15", 19" MT Yes; 7", 9", 12" single-touch Yes; 7", 9", 12" single-touch Yes; 7", 9", 12" ST; 12", 15", 19" MT Yes; 7", 9", 12" ST; 12", 15", 19" MT Yes; 7", 9", 12" single-touch
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>Ambient temperature during operation</li> </ul>	0 °C to 50 °C
<b>Relative humidity</b>	
<ul style="list-style-type: none"> <li>Relative humidity</li> </ul>	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)
<b>Vibrations</b>	
<ul style="list-style-type: none"> <li>Vibration resistance during operation acc. to IEC 60068-2-6</li> </ul>	Tested according to IEC 60068-2-6: 5 Hz to 8.4 Hz: 3.5 mm, 8.4 Hz to 500 Hz: 9.8 m/s <sup>2</sup>
<b>Shock testing</b>	
<ul style="list-style-type: none"> <li>Shock load during operation</li> </ul>	Tested according to IEC 60068-2-27: 50 m/s <sup>2</sup> , 30 ms
<b>Operating systems</b>	
Operating system	Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit
pre-installed operating system	Yes
without operating system	Yes
<b>pre-installed operating system</b>	
<ul style="list-style-type: none"> <li>Windows 7</li> <li>Windows 10 IoT Enterprise</li> </ul>	Yes; Ultimate 32 bits or 64 bits Yes; Windows 10 Enterprise 2016 LTSB, 64-bit, MUI
<b>Software</b>	
SIMATIC Software	Optional package with SIMATIC WinCC or WinAC RTX

Ordering data	Article No.	Article No.	Article No.
<b>SIMATIC IPC277E (Nanopanel PC)</b>	<b>6AV7882-</b>	<b>0</b>	<b>0 - 0 - 0</b>
<u>Operating unit</u>			
• 7" touch		<b>A</b>	
• 9" touch		<b>B</b>	
• 12" touch		<b>C</b>	
• 15" touch front USB		<b>D</b>	
• 19" touch front USB		<b>E</b>	
• 12" multi-touch (with WES7-E only single-touch mode)		<b>H</b>	
• 15" multi-touch (with WES7-E only single-touch mode)		<b>F</b>	
• 19" multi-touch (with WES7-E only single-touch mode)		<b>G</b>	
• 15" multi-touch (1 366 x 768; ATEX/IECEx/UL HazLoc; with WES7-E only single-touch mode)		<b>J</b>	
• 19" multi-touch (1 366 x 768; ATEX/IECEx/UL HazLoc; with WES7-E only single-touch mode)		<b>K</b>	
<u>Processor</u>			
• Celeron N2807 (2C/2T)		<b>A</b>	
• Celeron N2930 (4C/4T)		<b>B</b>	
• Celeron N2807 (2C/2T)/TPM		<b>C</b>	
• Celeron N2930 (4C/4T)/TPM		<b>D</b>	
<u>Work memory/NVRAM</u>			
• 2 GB		<b>1</b>	
• 4 GB		<b>2</b>	
• 8 GB		<b>3</b>	
• 2 GB/NVRAM		<b>4</b>	
• 4 GB/NVRAM		<b>5</b>	
• 8 GB/NVRAM		<b>6</b>	
<b>SIMATIC IPC277E (Nanopanel PC)</b>	<b>6AV7882-</b>	<b>0</b>	<b>0 - 0 - 0</b>
<u>Operating system</u>			
• Without OS		<b>0</b>	
• Windows Embedded Standard 7 E SP1, English, 32-bit		<b>1</b>	
• Windows Embedded Standard 7 E SP1, English, 64-bit		<b>2</b>	
• Windows Embedded Standard 7 P SP1, English, 32-bit		<b>3</b>	
• Windows Embedded Standard 7 P SP1, English, 64-bit		<b>4</b>	
• Windows 7 Ultimate SP1, 32-bit, MUI (en, de, fr, it, es)		<b>5</b>	
• Windows 7 Ultimate SP1, 64-bit, MUI (en, de, fr, it, es)		<b>6</b>	
• Windows 10 IoT Enterprise 2016 LTSB, 64-bit, MUI (en, de, fr, it, es)		<b>7</b>	
<u>Mass storage</u>			
• Without		<b>A</b>	
• 240 GB SSD		<b>C</b>	
• 480 GB SSD		<b>D</b>	
• 4 GB CFast		<b>K</b>	
• 8 GB CFast		<b>L</b>	
• 16 GB CFast		<b>M</b>	
• 30 GB CFast		<b>N</b>	
<u>Software</u>			
• Without SIMATIC software		<b>A</b>	
• CPU 1507S		<b>B</b>	
• WinCC RT Advanced V14, 128 PT (V15 license package)		<b>D</b>	
• WinCC RT Advanced V14, 512 PT (V15 license package)		<b>E</b>	
• WinCC RT Advanced V14, 2 048 PT (V15 license package)		<b>F</b>	
• WinCC RT Advanced V14, 4 096 PT (V15 license package)		<b>G</b>	
• CPU 1507S/WinCC RT Advanced V14, 128 PT (V15 license package)		<b>J</b>	
• CPU 1507S/WinCC RT Advanced V14, 512 PT (V15 license package)		<b>K</b>	
• CPU 1507S/WinCC RT Advanced V14, 2 048 PT (V15 license package)		<b>L</b>	
• CPU 1507S/WinCC RT Advanced V14, 4 096 PT (V15 license package)		<b>M</b>	

Note:

Please assemble the required IPC configuration using the TIA Selection Tool or the configurator in the Industry Mall in order to ensure suitability; we do not accept any liability for configurations compiled by users themselves.

Additional information is available on the Internet at:

<http://www.siemens.com/simatic-panel-ipc>

## PC-based Automation

### Panel PC

#### SIMATIC IPC377E

##### Overview



##### SIMATIC IPC377E

Based on Intel Celeron process technology, the SIMATIC IPC377E Box PC represents a new IPC platform which has been specifically developed for cost-optimized, PC-based applications in industrial and industry-oriented environments.

The SIMATIC IPC377E Panel PC is characterized by industrial touch displays in the sizes 12", 15" and 19" as well as a variety of interfaces. Fast availability from stock as well as the fanless industrial design complete the concept.

##### Technical specifications

Article number	<b>6AV7230-0....-....</b> SIMATIC IPC377E
<b>Installation type/mounting</b>	
Mounting	Panel mount and VESA, horizontal and vertical
Design	Panel PC, built-in unit
<b>Supply voltage</b>	
Type of supply voltage	24 V DC
<b>Mains buffering</b>	
• Mains/voltage failure stored energy time	10 ms
<b>Processor</b>	
Processor type	Intel Celeron N3160
<b>Drives</b>	
Hard disk	500 GB HDD
SSD	Yes; 256 GB SSD
<b>Memory</b>	
Type of memory	DDR3L
Main memory	4 GB, 8 GB
<b>Hardware configuration</b>	
<b>Slots</b>	
• free slots	1x mPCIe (half-size), 1x mSATA (full-size)
<b>Interfaces</b>	
Number of industrial Ethernet interfaces	2; 2x RJ45 (independent)
USB port	2x USB 2.0, 2x USB 3.0 (high current)
<b>Video interfaces</b>	
• Graphics interface	1x DisplayPort, 1x VGA
<b>Industrial Ethernet</b>	
• Industrial Ethernet interface	2 x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
<b>Protocols</b>	
<b>Protocols (Ethernet)</b>	
• TCP/IP	Yes
<b>Integrated Functions</b>	
<b>Monitoring functions</b>	
• Temperature monitoring	Yes
• Watchdog	Yes
• Status LEDs	POWER, HDD
• Fan	No

## Technical specifications (continued)

Article number	<b>6AV7230-0....-....</b> SIMATIC IPC377E
<b>EMC</b>	
<b>Interference immunity against discharge of static electricity</b>	
<ul style="list-style-type: none"> <li>Interference immunity against discharge of static electricity</li> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2               <ul style="list-style-type: none"> <li>- Test voltage at air discharge</li> <li>- Test voltage at contact discharge</li> </ul> </li> </ul>	±6 kV contact; ±8 kV air (to IEC 1000-4-2; ESD)  8 kV 6 kV
<b>Interference immunity against high-frequency electromagnetic fields</b>	
<ul style="list-style-type: none"> <li>Interference immunity against high frequency radiation</li> </ul>	10 V/m for 80 ... 1 000 MHz, 80 % AM according to IEC 61000-4-3; 3 V/m for 1.4 ... 6 GHz, 80 % AM according to IEC 61000-4-3
<b>Interference immunity to cable-borne interference</b>	
<ul style="list-style-type: none"> <li>Interference immunity on supply cables</li> <li>Interference immunity on signal cables &gt;30m</li> <li>Interference immunity on signal cables &lt; 30m</li> </ul>	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)  ±2 kV acc. to IEC 61000-4-4, burst; ±2 kV acc. to IEC 61000-4-5, surge  ±1 kV acc. to IEC 61000-4-4, Burst
<b>Interference immunity against voltage surge</b>	
<ul style="list-style-type: none"> <li>asymmetric interference</li> <li>symmetric interference</li> </ul>	±2 kV acc. to IEC 61000-4-5, surge asymmetric  ±1 kV acc. to IEC 61000-4-5, surge symmetric
<b>Interference immunity to magnetic fields</b>	
<ul style="list-style-type: none"> <li>Interference immunity to magnetic fields at 50 Hz</li> </ul>	100 A/m; to IEC 61000-4-8
<b>Degree and class of protection</b>	
IP (at the front)	IP65
IP (rear)	IP40

Article number	<b>6AV7230-0....-....</b> SIMATIC IPC377E
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
Dust protection	Protection against foreign bodies > 1 mm
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>Ambient temperature during operation</li> </ul>	0 to +45°C
<b>Relative humidity</b>	
<ul style="list-style-type: none"> <li>Relative humidity</li> </ul>	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)
<b>Vibrations</b>	
<ul style="list-style-type: none"> <li>Vibration resistance during operation acc. to IEC 60068-2-6</li> </ul>	Tested according to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm; 58 Hz to 500 Hz 9.8 m/s <sup>2</sup> (1g)
<b>Shock testing</b>	
<ul style="list-style-type: none"> <li>Shock load during operation</li> </ul>	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s <sup>2</sup> , 11 ms; with HDD: 9.8 m/s <sup>2</sup> , 20 ms
<b>Operating systems</b>	
Operating system	Windows 7 Ultimate (Multi-Language), 64-bit; Windows 10 Enterprise 2016 LTSB, 64-bit
pre-installed operating system	Yes
without operating system	Yes



## Overview

**SIMATIC IPC477E: The powerful embedded Panel PC – maintenance-free with versatile configuration**

- Embedded PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation
- Maintenance-free (no rotating components such as fan and hard disk)
- Rugged construction: The PC is resistant to even the harshest mechanical stress and extremely reliable in operation
- Compact design
- Battery-independent retentive memory onboard
- High degree of investment security
- Fast integration capability
- Built-in versions
  - 15" TFT touch
  - 19" TFT touch
  - 22" TFT touch
  - 15" TFT multi-touch
  - 19" TFT multi-touch
  - 22" TFT multi-touch
  - 24" TFT multi-touch

## Technical specifications

Article number	<b>6AV7241-.....-.....</b> SIMATIC IPC477E
<b>Installation type/mounting</b>	
Design	Panel PC, built-in unit
<b>Supply voltage</b>	
Type of supply voltage	100/240 V AC (autorange) 50/60 Hz; optional 24 V DC
<b>Line frequency</b>	
• Rated value 50 Hz	Yes
• Rated value 60 Hz	Yes
<b>Processor</b>	
Processor type	Celeron G3902 (2C/2T, 1.6 GHz, 2 MB Cache); Core i3-6102E (2C/4T, 1.9 GHz, 3 MB Cache); Core i5-6442EQ (4C/4T, 1.9 (2.7) GHz, 6 MB Cache, iAMT); Xeon E3-1505L v5 (4C/8T, 2.0 (2.8) GHz, 8 MB Cache, iAMT)
<b>Graphic</b>	
Graphics controller	Intel HD graphics controller
<b>Drives</b>	
Optical drives	possible as external drive via USB
Hard disk	2.5" SATA hard disk, at least 320 GB
SSD	Yes; 1x 80 GB, 1x 240 GB SSD, 1x 480 GB SSD
<b>Memory</b>	
Type of memory	DDR4 SO-DIMM
Main memory	4 GB to 16 GB, ECC optional
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional
<b>Hardware configuration</b>	
<b>Slots</b>	
• free slots	1x PCIe (slot with card retainer), 1x slot for CFAST card

## PC-based Automation

### Panel PC

#### SIMATIC IPC477E

#### Technical specifications (continued)

Article number	<b>6AV7241-.....-.....</b> SIMATIC IPC477E
<b>Interfaces</b>	
Number of industrial Ethernet interfaces	3; 3x Ethernet (RJ45)
USB port	4x USB 3.0
Connection for keyboard/mouse serial interface	USB / USB Without / 2x COM (RS 232 / 422 / 485), selectable in the BIOS
<b>Video interfaces</b>	
• Graphics interface	2x DisplayPort
<b>Industrial Ethernet</b>	
• Industrial Ethernet interface - 1000 Mbps	3x Ethernet (RJ45) Yes
<b>Integrated Functions</b>	
<b>Monitoring functions</b>	
• Watchdog	Yes
<b>Degree and class of protection</b>	
IP (at the front)	IP65
IP (rear)	IP20
<b>Standards, approvals, certificates</b>	
CE mark	Yes; CE marking / EC Declaration of Conformity
CSA approval	Yes
UL approval	Yes
• UL 508	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
FCC	Yes
EMC	CE, EN 61000-6-4; CISPR 22:2004 Class A; FCC Class A

Article number	<b>6AV7241-.....-.....</b> SIMATIC IPC477E
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
• Ambient temperature during operation	0 to +45°C
<b>Relative humidity</b>	
• Relative humidity	5% - 80% at 25 °C
<b>Vibrations</b>	
• Vibration resistance during operation acc. to IEC 60068-2-6	IEC 60068-2-6; 5 Hz to 9 Hz: 3.5 mm; 9 Hz to 500 Hz: 9.8 m/s <sup>2</sup> (with SSD or CFast); 10 Hz to 58 Hz: 0.0375 mm; 58 Hz to 200 Hz: 4.9 m/s <sup>2</sup> (hard disk)
<b>Shock testing</b>	
• Shock load during operation	IEC 60068-2-27; 150 m/s <sup>2</sup> , 11 ms (without hard disk); 50 m/s <sup>2</sup> , 30 ms (with hard disk)
<b>Operating systems</b>	
Operating system	Windows 7 Ultimate (Multi-Language) 64-bit, Windows Embedded Standard 7 E/P 32-bit / 64-bit, Windows 10
pre-installed operating system without operating system	Yes Yes
<b>pre-installed operating system</b>	
• Windows 7	Yes; Ultimate 64 bit
• Windows 10 IoT Enterprise	Yes; Windows 10 IoT Enterprise 2016 LTSB (64-bit) MUI
<b>Software</b>	
SIMATIC Software	Optionally with pre-installed SIMATIC WinCC RT Advanced / Software Controller CPU 1500S software bundle

Ordering data	Article No.	Article No.
<b>SIMATIC IPC477E <sup>1)</sup></b>	<b>6AV7241 -</b>	<b>6AV7241 -</b>
<u>Processor and fieldbus</u>		
• Celeron G3902E; 3 x Gigabit Ethernet (IE/PN)	1	0
• Core i3-6102E; 3 x Gigabit Ethernet (IE/PN)	3	1
• Core i5-6442EQ; 3 x Gigabit Ethernet (IE/PN)	5	2
• Xeon E3-1505L; 3 x Gigabit Ethernet (IE/PN)	7	3
<u>Operating unit</u>		
• 15" single-touch (1 280 x 800) with front USB	B	4
• 19" single-touch (1 366 x 768) with front USB	D	5
• 22" single-touch (1 920 x 1 080) with front USB	E	
• 15" multi-touch (1 366 x 768), single-touch mode only with WEST7-E	J	
• 19" multi-touch (1 366 x 768), single-touch mode only with WEST7-E	K	
• 22" multi-touch (1 920 x 1 080), single-touch mode only with WEST7-E	L	
• 24" multi-touch (1 920 x 1 080), single-touch mode only with WEST7-E	R	
<u>Work memory/NVRAM</u>		
• 4 GB	A	A
• 8 GB	B	F
• 16 GB	C	G
• 8 GB with ECC	D	J
• 16 GB with ECC	E	K
• 4 GB and NVRAM	F	L
• 8 GB and NVRAM	G	M
• 16 GB and NVRAM	H	
• 8 GB with ECC and NVRAM	J	
• 16 GB with ECC and NVRAM	K	
<u>Expansions/interface</u>		
• No RS 232/RS 485, without PCIe	0	0
• No RS 232/RS 485 and one PCIe	1	1
• Second RS 232/RS 485, without PCIe	3	7
• Second RS 232/RS 485 and one PCIe	4	
• No RS 232, without PCIe with ATEX/IECEX Cat 3G Zone 2	5	
• No RS 232 and one PCIe with ATEX/IECEX Cat 3G Zone 2	6	
• Two RS 232 without PCIe with ATEX/IECEX Cat 3G Zone 2	7	
• Two RS 232 and one PCIe with ATEX/IECEX Cat 3G Zone 2	8	8
<u>Operating system</u>		
• Without operating system	0	
• Windows Embedded Standard 7 SP1, English, 32-bit	1	
• Windows Embedded Standard 7 SP1, English, 64-bit	2	
• Windows Embedded Standard 7 P SP1, English, 64-bit, multi-touch	3	
• Windows 7 Ultimate SP1, 64-bit, MUI (en, de, fr, it, es)	4	
• Windows 10 Enterprise 2016 LTSB (64-bit) for Celeron, Core i3 and Core i5 processors	7	
• Windows 10 Enterprise 2016 LTSB (64-bit) for Xeon processors	8	
<u>Mass storage, externally accessible</u>		
• Without external mass storage		
• CFast 2 GB, without operating system		
• CFast 4 GB, without operating system		
• CFast 8 GB (only optionally with operating system/software if no internal mass storage or HDD)		
• CFast 16 GB (only optionally with operating system/software if no internal mass storage or HDD)		
• CFast 30 GB (only optionally with operating system/software if no internal mass storage or HDD)		
<u>Mass storage, internal</u>		
• Without internal mass storage		A
• Solid-state drive 240 GB; SATA		F
• Solid-state drive 480 GB; SATA		G
• 320 GB HDD		J
<u>SIMATIC software (bundles)</u>		
• Without SIMATIC software		A
• CPU 1507S		B
• WinCC RT Advanced V14 SP1		
- 128 PT		C
- 512 PT		D
- 2 048 PT		E
- 4 096 PT		F
- 8 192 PT		G
• CPU 1507S / WinCC RT Advanced V14 SP1		
- 128 PT		H
- 512 PT		J
- 2 048 PT		K
- 4 096 PT		L
- 8 192 PT		M
<u>Power supply:</u>		
• 24 V DC industrial power supply		0
• 110/230 V AC industrial power supply with NAMUR; European power cable		1
• 110/230 V AC industrial power supply with TPM <sup>2)</sup> (not for China or Russia) NAMUR, European power cable		7
• 24 V DC industrial power supply and TPM <sup>2)</sup> (not for China or Russia)		8

<sup>1)</sup> For an up-to-date overview, see the SIMATIC PC Online Configurator:  
<http://www.siemens.com/ipc-configurator>

<sup>2)</sup> TPM = Trusted Platform Module

## PC-based Automation

### Panel PC

#### SIMATIC IPC477D

#### Overview



#### **SIMATIC IPC477D: The powerful embedded Panel PC – maintenance-free with versatile configuration**

- Embedded PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation
- Maintenance-free (no rotating components such as fan and hard disk)
- Rugged construction: The PC is resistant to even the harshest mechanical stress and is extremely reliable in operation
- Compact design
- Battery-independent retentive memory onboard
- High degree of investment security
- Fast integration capability

Now available as fully-enclosed IPC477D PRO 15", 19" or 22" with degree of protection IP65.

The following front versions are available:

- Built-in versions
  - 12" TFT touch
  - 15" TFT touch
  - 15" TFT touch/key
  - 19" TFT touch
  - 22" TFT touch
  - 15" TFT multi-touch
  - 19" TFT multi-touch
  - 22" TFT multi-touch
  - 15" TFT multi-touch with marine approval
  - 19" TFT multi-touch with marine approval
  - 22" TFT multi-touch with marine approval

#### Technical specifications

Article number	<b>6AV7240-.....-....</b> SIMATIC IPC477D	<b>6AV7240-.....-....8</b> SIMATIC IPC477D WITH TPM
<b>Installation type/mounting</b>		
Mounting	For horizontal and vertical mounting	
Design	Panel PC, built-in unit	Box PC, built-in unit
<b>Supply voltage</b>		
Type of supply voltage	100/240 V AC (autorange) 50/60 Hz; optional 24 V DC	100/240 V AC (autorange) 50/60 Hz; optional 24 V DC
<b>Line frequency</b>		
• Rated value 50 Hz	Yes	Yes
• Rated value 60 Hz	Yes	Yes
<b>Mains buffering</b>		
• Mains/voltage failure stored energy time	10 ms	
<b>Processor</b>		
Processor type	Celeron 827E (1C/1T, 1.40 GHz, 1.5 MB Cache); Core i3-3217UE (2C/4T, 1.60 GHz, 3 MB Cache); Core i7-3517UE (2C/4T, 1.70 (2.80) GHz, 4 MB Cache, iAMT)	Intel Core i7-3517UE Intel Core i3-3217UE Intel Celeron 827E
<b>Graphic</b>		
Graphics controller	Intel HD graphics controller	Intel HD graphics controller
<b>Drives</b>		
Optical drives	Optional: DVD±R±RW combi drive; on rear, can be operated from side	Optional: DVD±R±RW combi drive; on rear, can be operated from side
Hard disk	2.5" SATA hard disk, at least 320 GB	2.5" SATA hard disk, at least 320 GB
SSD	Yes; 1x 80 GB, 1x 240 GB SSD, 1x 480 GB SSD	Yes; 1x 80 GB, 1x 240 GB SSD, 1x 480 GB SSD
<b>Memory</b>		
Type of memory	DDR3-SDRAM	DDR3-SDRAM
Main memory	1 GB to 8 GB, ECC optional	1 GB to 8 GB, ECC optional
<b>Data areas and their retentivity</b>		
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional	512 kbyte; 128 KB can be stored in the buffer time; optional
<b>Hardware configuration</b>		
Slots	1x PCIe (slot with card retainer), 1x slot for CFAST card	1x PCIe (slot with card retainer), 1x slot for CFAST card

## Technical specifications (continued)

Article number	6AV7240-.....-.... SIMATIC IPC477D	6AV7240-.....-....8 SIMATIC IPC477D WITH TPM
<b>Interfaces</b>		
PROFIBUS/MPI	Optionally onboard, isolated, max. 12 Mbit/s, no plug-in card necessary, CP 5622-compatible	Optionally onboard, isolated, max. 12 Mbit/s, no plug-in card necessary, CP 5622-compatible
Number of PROFINET interfaces	3; 3 ports (incl. switch)	3; 3 ports (incl. switch)
USB port	4x USB 3.0 high speed/high current	4x USB 3.0 high speed/high current
Connection for keyboard/mouse	USB / USB	USB / USB
serial interface	COM1: 1x RS 232, COM2 (optional): 1x RS 232	COM1: 1x RS 232, COM2 (optional): 1x RS 232
<b>Video interfaces</b>		
• Graphics interface	DVI VGA / DVI integrated	DVI VGA / DVI integrated
<b>Industrial Ethernet</b>		
• Industrial Ethernet interface	Onboard, 2 x 10/100 Mbit/s, RJ45, no plug-in card necessary	Onboard, 2x 10 / 100 / 1000 Mbit, RJ45
<b>Integrated Functions</b>		
<b>Monitoring functions</b>		
• Temperature monitoring	Yes	Yes
• Watchdog	Yes	Yes
• Status LEDs	Yes	Yes
• Monitoring function via network	Optional	Optional
<b>EMC</b>		
<b>Interference immunity against discharge of static electricity</b>		
• Interference immunity against discharge of static electricity	± 6 kV contact discharge at the front in accordance with IEC 61000-4-2; ±4 kV, housing contact discharge at the back in accordance with IEC 61000-4-2; ± 8 kV air discharge in accordance with IEC 61000-4-2	
<b>Interference immunity against high-frequency electromagnetic fields</b>		
• Interference immunity against high frequency radiation	10 V/m for 80 - 1000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6	
<b>Interference immunity to cable-borne interference</b>		
• Interference immunity on supply cables	±2 kV (to IEC 1000-4-4; 1995; burst); ±1 kV (to IEC 1000-4-5; 1995; surge symm); ±2 kV (to IEC 1000-4-5; 1995; surge asymm)	
• Interference immunity on signal cables >30m	±2 kV acc. to IEC 61000-4-4, burst; length > 30 m; ±2 kV acc. to IEC 61000-4-5, surge; length > 30 m	
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m	
<b>Interference immunity against voltage surge</b>		
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric	
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric	

Article number	6AV7240-.....-.... SIMATIC IPC477D	6AV7240-.....-....8 SIMATIC IPC477D WITH TPM
<b>Interference immunity to magnetic fields</b>		
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8
<b>Emission of conducted and non-conducted interference</b>		
• Interference emission via line/AC current cables	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A	
<b>Degree and class of protection</b>		
IP (at the front)	IP65	IP65
IP (rear)	IP20	IP20
<b>Standards, approvals, certificates</b>		
CE mark	Yes	Yes
UL approval	Yes	Yes
• UL 508	Yes	Yes
cULus	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes
KC approval	Yes	Yes
FCC	Yes	Yes
EMC	CE, EN 61000-6-4; CISPR 22:2004 Class A; FCC Class A	
<b>Marine approval</b>		
• Germanischer Lloyd (GL)	Yes	Yes
• American Bureau of Shipping (ABS)	Yes	Yes
• Bureau Veritas (BV)	Yes	Yes
• Det Norske Veritas (DNV)	Yes	Yes
• Lloyds Register of Shipping (LRS)	Yes	Yes
• Nippon Kaiji Kyokai (Class NK)	Yes	Yes
<b>Ambient conditions</b>		
<b>Ambient temperature during operation</b>		
• Ambient temperature during operation	0 °C to +50 °C with full configuration	
<b>Relative humidity</b>		
• Relative humidity	Tested according to IEC 60068-2-78, IEC 60068-2-30: 5% to 80% at 25 °C (no condensation)	
<b>Vibrations</b>		
• Vibration resistance during operation acc. to IEC 60068-2-6	IEC 60068-2-6; 5 Hz to 9 Hz: 3.5 mm; 9 Hz to 500 Hz: 9.8 m/s <sup>2</sup> (with SSD or CFast); 10 Hz to 58 Hz: 0.0375 mm; 58 Hz to 200 Hz: 4.9 m/s <sup>2</sup> (hard disk)	
<b>Shock testing</b>		
• Shock load during operation	IEC 60068-2-27; 150 m/s <sup>2</sup> , 11 ms (without hard disk); 50 m/s <sup>2</sup> , 30 ms (with hard disk)	
<b>Operating systems</b>		
Operating system	Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 P, 32-bit, MUI	
pre-installed operating system	Yes	Yes
without operating system	Yes	Yes
<b>pre-installed operating system</b>		
• Windows 7	Yes; Ultimate 32 bits or 64 bits	Yes; Ultimate 32 bits or 64 bits
<b>Software</b>		
SIMATIC Software	Optionally with pre-installed software bundle SIMATIC WinCC RT Advanced / WinAC RTX	

# PC-based Automation

## Panel PC

### SIMATIC IPC477D

#### Ordering data

#### Article No.

#### SIMATIC IPC477D <sup>1)</sup>

##### Processor and fieldbus:

- Celeron U827E (1C/1T, 1.4 GHz, 1.5 MB cache); 2 x Gigabit Ethernet (IE/PN) **0**
- Celeron U827E (1C/1T, 1.4 GHz, 1.5 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12 **1**
- Core i3-3217UE (2C/4T, 1.6 GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN) **3**
- Core i3-3217UE (2C/4T, 1.6 GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12 **4**
- Core i3-3217UE (2C/4T, 1.6 GHz, 3 MB cache); 1 x Gigabit Ethernet (IE/PN); 1 x PROFINET (IRT, 3 ports) **5**
- Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 4 MB cache); 2 x Gigabit Ethernet (IE/PN) **6**
- Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 4 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12 **7**
- Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 4 MB cache); 1 x Gigabit Ethernet (IE/PN); 1 x PROFINET (IRT, 3 ports) **8**

##### Operator control unit:

- 12" touch (1 280 x 800) (caution, restrictions regarding options: HDD, PCI, AC, DVD) **A**
- 15" touch (1 280 x 800) with front USB **B**
- 15" touch/key (1 280 x 800) with front USB **C**
- 19" touch (1 366 x 768) with front USB **D**
- 22" touch (1 920 x 1 080) with front USB **E**
- 15" multi-touch (1 366 x 768) without front USB **H**
- 19" multi-touch (1 366 x 768) without front USB **K**
- 22" multi-touch (1 920 x 1 080) without front USB **L**
- 15" multi-touch (1 366 x 768) without front USB, with marine approval **M**
- 19" multi-touch (1 366 x 768) without front USB, with marine approval **N**
- 22" multi-touch (1 920 x 1 080) without front USB, with marine approval **P**

##### Work memory/NVRAM

- 2 GB **B**
- 4 GB **C**
- 8 GB **D**
- 2 GB and NVRAM **K**
- 4 GB and NVRAM **L**
- 8 GB and NVRAM **M**

#### Article No.

#### SIMATIC IPC477D <sup>1)</sup>

##### Expansions/interface:

- 1 x RS 232, without PCIe **0**
- 1 x RS 232 and one PCIe **1**
- Two RS 232, without PCIe **3**
- Two RS 232 and one PCIe **4**

##### Operating system:

- Without operating system **0**
- Windows Embedded Standard 7 Professional, 32-bit, MUI **3**
- Windows Embedded Standard 7 SP1, English, 32-bit **4**
- Windows Embedded Standard 7 SP1, English, 64-bit **5**
- Windows 7 Ultimate SP1, 32-bit, MUI (en, de, fr, it, es) **6**
- Windows 7 Ultimate SP1, 64-bit, MUI (en, de, fr, it, es) **7**

##### Externally accessible mass storage (without operating system):

- Without external mass storage **0**
- CFAST 2 GB, without operating system **1**
- CFAST 4 GB <sup>4)</sup> **2**
- CFAST 8 GB <sup>4)</sup> **3**
- CFAST 16 GB <sup>4)</sup> **4**
- DVD **6**

##### Internal mass storage:

- Without internal mass storage **A**
- CFAST 2 GB **B**
- CFAST 4 GB **C**
- CFAST 8 GB **D**
- CFAST 16 GB **E**
- 320 GB HDD **K**
- DVD **L**
- SSD 240 GB standard without DVD **P**
- SSD 480 GB standard without DVD **R**
- HDD min. 320 GB with DVD **Q**

4

<sup>1)</sup> Built-to-order versions with a delivery time of max. 15 working days and with identified repair.

<sup>2)</sup> Only with work memory and NVRAM.

<sup>3)</sup> TPM = Trusted Platform Module

<sup>4)</sup> Only optionally with operating system/software if no internal mass storage or HDD



## PC-based Automation

### Panel PC

#### SIMATIC IPC677D

#### Overview



#### ***SIMATIC IPC677D: The high-end Panel PC – with maximum performance, functional scope and expansion capability***

PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation.

Rugged construction: The PC is resistant to even the harshest mechanical stress and is extremely reliable in operation.

- Compact design
- High degree of investment protection
- Fast integration capability

The following widescreen front variants are available:

- 15", 19" or 22" resistive single-touch color display with front USB
- 15", 19" or 22" capacitive multi-touch color display

#### Technical specifications

Article number	<b>6AV7260-.....-.....</b> SIMATIC IPC677D
<b>Installation type/mounting</b>	
Mounting	For horizontal and vertical mounting
Design	Panel PC, built-in unit
maximum permissible installation angle +/-	20°
<b>Supply voltage</b>	
Type of supply voltage	100/240 V AC (autorange); 24 V DC
<b>Line frequency</b>	
• Rated value 50 Hz	Yes
• Rated value 60 Hz	Yes
<b>Mains buffering</b>	
• Mains/voltage failure stored energy time	10 ms
<b>Processor</b>	
Processor type	Celeron G1820TE (2C/2T, 2.2 GHz, 2 MB Cache); Core i3-4330TE (2C/4T, 2.4 GHz, 4 MB Cache); Xeon E3-1268L v3 (4C/8T, 2.3 (3.3) GHz, 8 MB Cache, AMT)
Chipset	Intel DH82C226 PCH
<b>Graphic</b>	
Graphics controller	Intel HD graphics controller P4600 GT2 (Xeon, Core i3); Intel HD graphics controller (Celeron)
<b>Drives</b>	
Optical drives	DVD±R±RW combi-drive, optional
Hard disk	3.5" SATA ≥ 500 GB, optional; 3.5" SATA ≥ 1 TB; RAID1 2x 2.5" SATA ≥ 320 GB; solid-state drive (SSD) ≥ 240 GB; all hard disk drives within the enclosure are vibration-damped; RAID1 2x 2.5" SATA ≥ 320 GB byte in removable drive bay
SSD	Yes; ≥ 240 GB optional

## Technical specifications (continued)

Article number	<b>6AV7260-.....-.....</b> SIMATIC IPC677D
<b>Memory</b>	
Type of memory	DDR3 1600 DIMM
Main memory	2 / 4 / 8 / 16 GB; ECC optional
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	2 Mbyte; 128 KB can be stored in the buffer time; optional
<b>Hardware configuration</b>	
<b>Slots</b>	
• free slots	2x PCI; optional: 1x PCI & 1x PCIe (x16); 2x PCIe (x4, x16); with card retainer
<b>Interfaces</b>	
PROFIBUS/MPI	Optionally onboard, isolated, max. 12 Mbit/s, compatible with CP 5622
Number of industrial Ethernet interfaces	2; 2x RJ45 (independent)
Number of PROFINET interfaces	3; Optional
USB port	4x USB 3.0
Connection for keyboard/mouse serial interface	USB / USB 1x COM1 (RS 232), optional: 1x COM2 (RS 232)
parallel interface	optional LPT1
<b>Video interfaces</b>	
• Graphics interface	1x DisplayPort and 1x DVI-I; 1x VGA via adapter cable (optional)
<b>Industrial Ethernet</b>	
• Industrial Ethernet interface	Onboard, 2x 10 / 100 / 1000 Mbit, RJ45
- 100 Mbps	Yes
- 1000 Mbps	Yes
<b>Integrated Functions</b>	
<b>Monitoring functions</b>	
• Temperature monitoring	Yes
• Watchdog	Yes
• Status LEDs	Yes
• Fan	Yes
• Monitoring function via network	Optional
<b>EMC</b>	
<b>Interference immunity against discharge of static electricity</b>	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
<b>Interference immunity against high-frequency electromagnetic fields</b>	
• Interference immunity against high frequency radiation	10 V/m for 80 - 1000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6
<b>Interference immunity to cable-borne interference</b>	
• Interference immunity on supply cables	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
• Interference immunity on signal cables >30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m

Article number	<b>6AV7260-.....-.....</b> SIMATIC IPC677D
<b>Interference immunity against voltage surge</b>	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric
<b>Interference immunity to magnetic fields</b>	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
<b>Emission of conducted and non-conducted interference</b>	
• Interference emission via line/AC current cables	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
<b>Degree and class of protection</b>	
IP (at the front)	IP65
IP (rear)	IP20
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes
• UL 508	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
FCC	Yes
EMC	CE, EN 61000-6-4:2007, EN 61000-6-2:2005
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
• Ambient temperature during operation	+5 °C to +45 °C with full configuration
<b>Relative humidity</b>	
• Relative humidity	Tested according to IEC 60068-2-78, IEC 60068-2-30: 5% to 80% at 25 °C (no condensation)
<b>Vibrations</b>	
• Vibration resistance during operation acc. to IEC 60068-2-6	Tested according to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm; 58 Hz to 500 Hz 9.8 m/s <sup>2</sup> (1g)
<b>Shock testing</b>	
• Shock load during operation	Tested to DIN IEC 60068-2-29: 50 m/s <sup>2</sup> (5 g), 30 ms, 100 shocks
<b>Operating systems</b>	
Operating system	Windows 7 Ultimate, 32-bit/64-bit, MUI; Windows Embedded Standard 7 P, 32-bit, MUI; Windows 10 Enterprise 2015 or 2016 LTSB, 64-bit, MUI
pre-installed operating system without operating system	Yes Yes
<b>pre-installed operating system</b>	
• Windows 7	Yes; Ultimate 32 bits or 64 bits
• Windows 10 IoT Enterprise	Yes; Windows 10 Enterprise 2015 or 2016 LTSB, 64-bit, MUI
<b>Software</b>	
SIMATIC Software	Optional package with SIMATIC WinCC or WinAC RTX

# PC-based Automation

## Panel PC

### SIMATIC IPC677D

#### Ordering data

#### Article No.

##### SIMATIC IPC677D <sup>1)</sup>

6AV7260 -

HD graphics onboard;  
2 x Gigabit Ethernet (IE/PN) RJ45;  
4 x USB V3.0; 1x serial (COM1);  
RAID controller onboard;  
watchdog, temp./fan monitoring

##### Operating unit

- 15" touch (1 280 x 800)  
with front USB
- 19" touch (1 366 x 768)  
with front USB
- 22" touch (1 920 x 1 080)  
with front USB
- 15" multi-touch (1 366 x 768)
- 19" multi-touch (1 366 x 768)
- 22" multi-touch (1 920 x 1 080)

0

1

2

3

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5

##### Processor

- Celeron G1820TE  
(2C/2T, 2.2 GHz, 2 MB cache)
- Celeron G1820TE  
(2C/2T, 2.2 GHz, 2 MB cache);  
PROFIBUS/MPI  
(CP 5622-compatible);  
2 MB buffered SRAM
- Celeron G1820TE  
(2C/2T, 2.2 GHz, 2 MB cache);  
PROFINET (IRT, 3 ports,  
CP 1616-compatible);  
2 MB buffered SRAM
- Core i3-4330TE  
(2C/4T, 2.4 GHz, 4 MB cache,  
VT-x)
- Core i3-4330TE  
(2C/4T, 2.4 GHz, 4 MB cache,  
VT-x); PROFIBUS/MPI  
(CP 5622-compatible);  
2 MB buffered SRAM
- Core i3-4330TE  
(2C/4T, 2.4 GHz, 4 MB cache,  
VT-x); PROFINET (IRT, 3 ports,  
CP 1616-compatible);  
2 MB buffered SRAM
- Xeon E3-1268Lv3  
(4C/8T, 2.3 (3.3) GHz,  
8 MB cache, VT-d, AMT)
- Xeon E3-1268Lv3  
(4C/8T, 2.3 (3.3) GHz,  
8 MB cache, VT-d, AMT);  
PROFIBUS/MPI  
(CP 5622-compatible);  
2 MB buffered SRAM
- Xeon E3-1268Lv3  
(4C/8T, 2.3 (3.3) GHz,  
8 MB cache, VT-d, AMT);  
PROFINET (IRT, 3 ports,  
CP 1616-compatible);  
2 MB buffered SRAM

A

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C

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G

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J

##### SIMATIC IPC677D <sup>1)</sup>

#### Article No.

6AV7260 -

##### Drives

- 500 GB HDD SATA
- 500 GB HDD SATA; DVD+/-RW
- 1 TB HDD SATA
- 1 TB HDD SATA; DVD+/-RW
- RAID1 2 x 320 GB SATA (2.5")
- RAID1 2 x 320 GB SATA (2.5");  
DVD+/-RW
- Exchangeable SSD RAID1  
2x 240 GB SATA (2.5")
- Exchangeable SSD RAID1  
2 x 320 GB SATA (2.5")
- Exchangeable SSD RAID1  
2 x 320 GB SATA (2.5");  
solid-state drive 240 GB
- Solid-state drive 240 GB;
- Solid-state drive 240 GB;  
320 GB HDD SATA (2.5")
- Solid-state drive 240 GB;  
320 GB HDD SATA (2.5");  
DVD+/-RW

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##### Memory configuration

- 2 GB DDR3 1600 DIMM
- 4 GB DDR3 1600 DIMM
- 8 GB DDR3 1600 DIMM
- 16 GB DDR3 1600 DIMM
- 8 GB DDR3 1600 DIMM; ECC
- 16 GB DDR3 1600 DIMM; ECC

1

2

3

4

5

6

##### Expansions (HW)

- 2 x PCI
- 1 x PCIe (x16); 1 x PCI
- 1 x PCIe (x16); 1 x PCIe (x4)

0

1

2

##### Expansion 2 (HW)

- Without expansion (HW)
- 2 x USB in addition  
(1 slot occupied)
- COM2; LPT (1 slot occupied)
- 2 x USB in addition; COM2;  
LPT (2 slots occupied)

0

1

2

3

Ordering data	Article No.	Article No.	
<b>SIMATIC IPC677D <sup>1)</sup></b> <u>Operating system</u> <ul style="list-style-type: none"> <li>Windows 7 Ultimate 32-bit, SP1, MUI (en, de, fr, it, es)</li> <li>Windows 7 Ultimate 64-bit, SP1, MUI (en, de, fr, it, es)</li> <li>Windows 10 Enterprise 2015 LTSB, 64-bit, MUI (en, de, fr, it, es)</li> <li>Windows Embedded Standard 7 P, 32-bit, SP1, MUI (en, de, fr, it, es) with SSD 80 GB option</li> <li>Windows 10 Enterprise 2016 LTSB, 64-bit, MUI (en, de, fr, it, es) for Celeron and i3 processors</li> <li>Windows 10 Enterprise 2016 LTSB, 64-bit, MUI (en, de, fr, it, es) for Xeon processors</li> <li>None</li> </ul> <u>Expansion (SW)</u> <ul style="list-style-type: none"> <li>SIMATIC IPC DiagMonitor enclosed</li> <li>SIMATIC IPC Image &amp; Partition Creator enclosed</li> <li>SIMATIC IPC DiagMonitor, Image &amp; Partition Creator enclosed</li> <li>Without</li> <li>TPM <sup>2)</sup> (not for China or Russia)</li> </ul>	<b>6AV7260 -</b>	<b>SIMATIC IPC677D <sup>1)</sup></b> <u>Country-specific version / power supply</u> <ul style="list-style-type: none"> <li>110/230 V AC industrial power supply with NAMUR; power cable for Europe</li> <li>110/230 V AC industrial power supply with NAMUR; power cable for UK</li> <li>110/230 V AC industrial power supply with NAMUR; power cable for CH</li> <li>110/230 V AC industrial power supply with NAMUR; power cable for the USA</li> <li>110/230 V AC industrial power supply NAMUR; power cable for Italy</li> <li>110/230 V AC industrial power supply with NAMUR; power cable for China</li> <li>24 V DC industrial power supply</li> <li>110/230 V AC industrial power supply with NAMUR; without power cable</li> </ul>	<b>6AV7260 -</b>

<sup>1)</sup> Production and delivery as per order

<sup>2)</sup> TPM = Trusted Platform Module

#### Note:

Please assemble the required IPC configuration using the TIA Selection Tool or the configurator in the Industry Mall in order to ensure suitability; we do not accept any liability for configurations compiled by users themselves.

Ordering data	Article No.	Article No.	
<u>Accessories</u> <b>Memory expansion</b> <ul style="list-style-type: none"> <li>2 GB DDR3 1600 SDRAM, DIMM</li> <li>4 GB DDR3 1600 SDRAM, DIMM</li> <li>8 GB DDR3 1600 SDRAM, DIMM</li> <li>8 GB DDR3 1600 SDRAM, DIMM, ECC</li> </ul>	<b>6ES7648-2AJ50-0MA0</b>  <b>6ES7648-2AJ60-0MA0</b>  <b>6ES7648-2AJ70-0MA0</b>  <b>6ES7648-2AJ70-1MA0</b>	<b>Non-heating apparatus cable for SIMATIC Box and Panel PC</b> SIMATIC PC power cable, 230 V AC, angled, 3 m, for: <ul style="list-style-type: none"> <li>Germany</li> <li>United Kingdom</li> <li>Switzerland</li> <li>USA</li> <li>Italy</li> <li>China</li> </ul>	<b>6ES7900-1AA00-0XA0</b> <b>6ES7900-1BA00-0XA0</b> <b>6ES7900-1CA00-0XA0</b> <b>6ES7900-1DA00-0XA0</b> <b>6ES7900-1EA00-0XA0</b> <b>6ES7900-1FA00-0XA0</b>
		<b>Touch pen</b> See "Accessories -> Accessibility"	
		<b>Expansion components</b> See Expansion components	
		<b>Communication components</b> See Expansion components	

Additional information is available on the Internet at:

<http://www.siemens.com/simatic-panel-pc>

#### Note

Do you need a specific modification or option for the products described here? Under "Customized products", you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.