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Ordering data

SIMATIC IPC427E (Box PC) [1]	Article No. 6AG4141-						-				
Processor and fieldbus											
• Celeron G3902E; 2 x Gigabit Ethernet (IE/PN)		0									
• Celeron G3902E; 3 x Gigabit Ethernet (IE/PN)		1									
• Core i3-6102E; 3 x Gigabit Ethernet (IE/PN)		3									
• Core i5-6442EQ; 3 x Gigabit Ethernet (IE/PN)		5									
• Xeon E3-1505L; 3 x Gigabit Ethernet (IE/PN)		7									
Mounting accessories/ATEX											
• Standard mounting rail			B								
• Wall mounting			C								
• Portrait mounting			D								
• Standard mounting rail with ATEX/IECEx Cat 3G Zone 2 / cULus Class I Div. 2			F								
• Wall mounting with ATEX/IECEx Cat 3G Zone 2 / cULus Class I Div. 2			G								
• Portrait mounting with ATEX/IECEx Cat 3G Zone 2 / cULus Class I Div. 2			H								
Work memory/NVRAM/ECC											
• 4 GB				A							
• 8 GB				B							
• 16 GB				C							
• 8 GB with ECC				D							
• 16 GB with ECC				E							
• 4 GB and NVRAM				F							
• 8 GB and NVRAM				G							
• 16 GB and NVRAM				H							
• 8 GB with ECC and NVRAM				J							
• 16 GB with ECC and NVRAM				K							
Expansions/interface											
• No RS 232/RS 485, without PCIe					0						
• No RS 232/RS 485 and one PCIe					1						
• No RS 232/RS 485 and two PCIe					2						
• Two RS 232/RS 485, without PCIe					3						
• Two RS 232/RS 485 and one PCIe					4						
• Two RS 232/RS 485 and two PCIe					5						
Operating system											
• 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 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					

SIMATIC IPC427E (Box PC) [1]	Article No. 6AG4141-						-				
Mass storage, externally accessible											
• Without external mass storage								0			
• CFast 2 GB without operating system								1			
• CFast 4 GB without operating system								2			
• CFast 8 GB (only optionally with operating system/software if no internal mass storage or HDD)								3			
• CFast 16 GB (only optionally with operating system/software if no internal mass storage or HDD)								4			
• CFast 30 GB (only optionally with operating system/software if no internal mass storage or HDD)								5			
Mass storage, internal											
• Without internal mass storage									A		
• CFast 8 GB									B		
• CFast 16 GB									C		
• CFast 30 GB									D		
• 240 GB solid-state drive SATA									F		
• 480 GB solid-state drive SATA									G		
• 320 GB HDD									J		
SIMATIC software (bundles)											
• Without SIMATIC software										A	
• CPU 1507S										B	
• WinCC RT Advanced V14 SP1, 128 PT										C	
• WinCC RT Advanced V14 SP1, 512 PT										D	
• WinCC RT Advanced V14 SP1, 2 048 PT										E	
• WinCC RT Advanced V14 SP1, 4 096 PT										F	
• WinCC RT Advanced V14 SP1, 8 192 PT										G	
• CPU 1507S / WinCC RT Advanced V14 SP1, 128 PT										H	
• CPU 1507S / WinCC RT Advanced V14 SP1, 512 PT										J	
• CPU 1507S / WinCC RT Advanced V14 SP1, 2 048 PT										K	
• CPU 1507S / WinCC RT Advanced V14 SP1, 4 096 PT										L	
• CPU 1507S / WinCC RT Advanced V14 SP1, 8 192 PT										M	
Power supply											
• 24 V DC industrial power supply											0
• 24 V DC and TPM [2] (not for China or Russia)											8

[1] For an up-to-date overview, see the SIMATIC PC online configurator: http://www.siemens.com/ipc-configurator

[2] TPM = Trusted Platform Module

1.1.1 Applications

The device provides industrial PC systems for high-performance and space-saving applications in particular in the field of machine, systems and switchgear cabinet engineering:

- Measuring and controlling process and machine data, for example, automated washing systems, assembling machines and packaging machines
- Operating and visualization tasks with separate monitors or displays, for example, information terminals and large-scale displays in automotive production
- Data logging and processing, for example, system data logging and distributed process control

1.1.2 Features

Basic data	
Installation	• Installation on a DIN rail • Wall mounting • Vertical mounting
Processor	• Intel® Celeron® Processor G3902E (2M Cache, 1.6 GHz) • Intel® Core™ i3-6102E Processor (3M Cache, 1.9 GHz) • Intel® Core™ i5-6442EQ Processor (6M Cache, up to 2.7 GHz) • Intel® Xeon® Processor E3-1505L v5 (8M Cache, up to 2.8 GHz)
Main memory	Memory modules without ECC: • 4 GB DDR4-SDRAM SODIMM • 8 GB DDR4-SDRAM SODIMM • 16 GB DDR4-SDRAM SODIMM Memory module with ECC (not combinable with i5 CPU): • 8 GB DDR4-SDRAM SODIMM • 16 GB DDR4-SDRAM SODIMM
Free slots for expansion cards	Up to 2 × PCIe cards (optional), depending on enclosure version; max. 175 mm long
Graphics	• Intel® HD Graphics 510 / 530 / P530 (depending on CPU type) • 2 x DisplayPort, maximum resolution 4096 x 2304 pixels • Graphics memory is claimed in main memory (dynamic UMA)
Power supply (X80)	24 V DC (-20%/+20%) max. 4 A
Conditions of use	Operation without fan

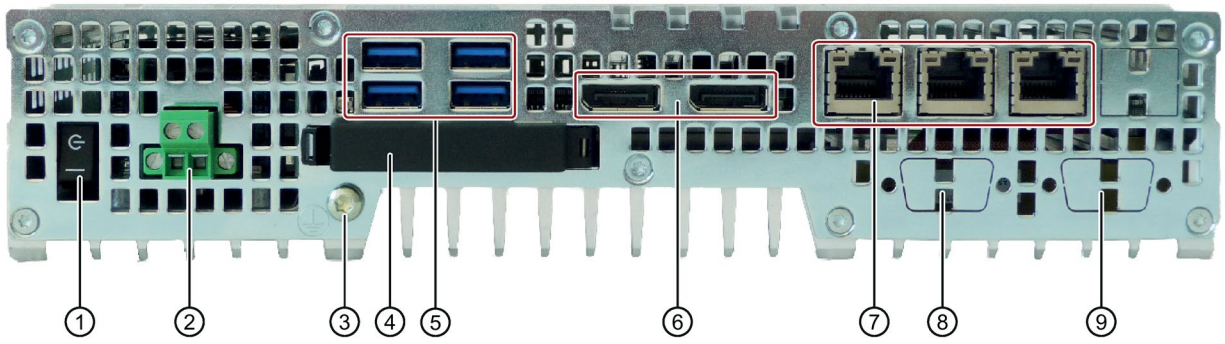
Basic data	
Drives and storage media	
CFast card	Can be used optionally as boot drive or additional data memory. • 2 GB • 4 GB • 8 GB • 16 GB • ≥ 30 GB
Hard disk	2.5", ≥ 320 GB, SATA (optional)
SSD (Solid State Disk)	2.5", ≥ 240 GB, SATA (optional) and 480 GB SATA (optional)
USB stick	External, can be connected via USB interface
Ports	
Serial	COM1 (X30) / COM2 (X31) (RS 232, RS 422, RS 485 configurable), optional
Graphics	2 x DisplayPort DPP (X70), (X71) (DVI via DP++ to DVI adapter possible)
USB (X60), (X61), (X62). (X63)	4 × USB 3.0, simultaneous operation of max. 2 x high current ports, backward compatible with USB 2.0/1.1
Ethernet (X1) P1, (X2) P1, (X3) P1	2 × (3 x optional) RJ45 (10/100/1000 Mbps), teaming-capable
Keyboard, mouse	Connected via external USB port

Extended device functions	
Temperature monitoring	• When permitted temperature range is exceeded • Warnings can be analyzed by application program (local, via LAN)
Watchdog	• Monitoring function for program execution • Restart can be parameterized in the event of a fault • Warnings can be analyzed by application program (local, via LAN)
LED display	4 LEDs for displaying system statuses; 3 of these can be freely programmed by the user
Transient voltage interruption	Up to 15 ms buffer time at full load
Buffer memory	512 KB optional
TPM	Integrated Trusted Platform Module, optional, according to TPM 2.0 standard

Software	
Operating systems	
Available	• None • Windows Embedded Standard 7, SP1 • Windows 7 Ultimate, SP1 • Windows 10 IoT Enterprise LTSB 2016, 64-bit • Windows 10 IoT Enterprise LTSC 2019, 64-bit • Windows 10 LTSC2021 (SIMATIC IPC Operating System Package, not preinstalled)
Project-specific	• Linux • QNX • VxWorks

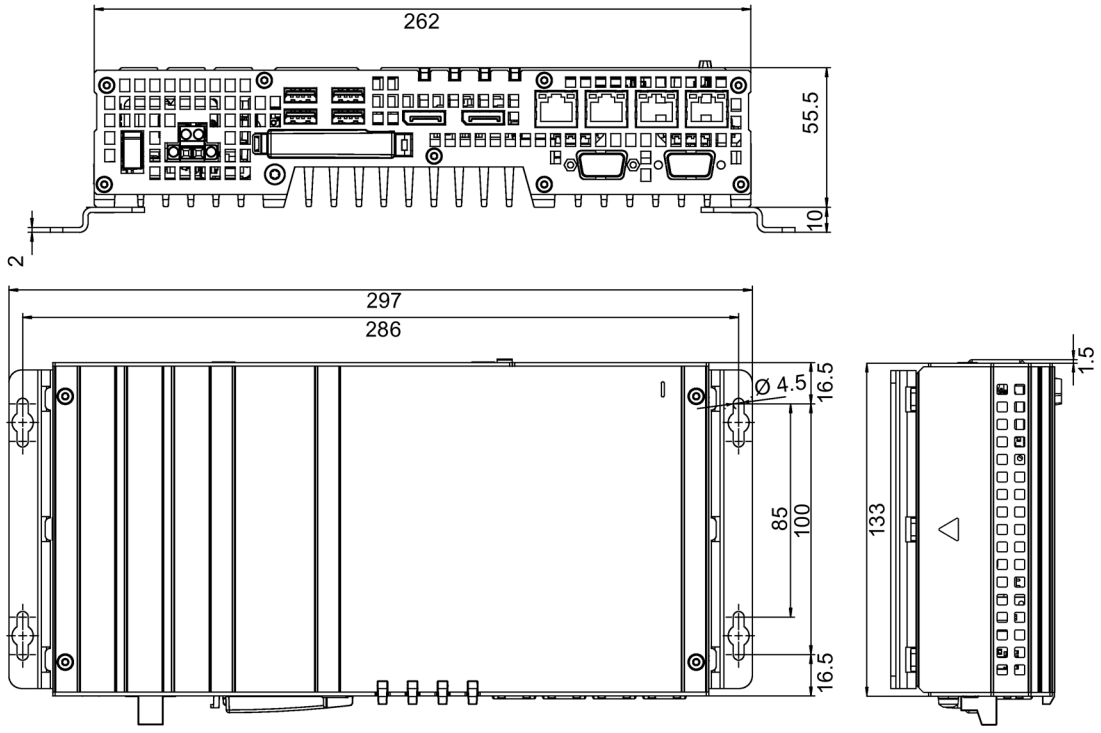
1.2 Design of the device

1.2.1 Interfaces and operating elements



①	On/Off switch	The on/off switch does not isolate the device from the power supply. Position "OFF", when the "_" symbol is pressed. Position "OFF" is the delivery state.
②	24 V DC (X80)	Power supply connection
③	Protective conductor connection	Protective conductor terminal
④	Slot (X50) for external CFast card	Slot for CFast card with cover
⑤	4 × USB interface (X60), (X61), (X62), (X63)	USB 3.0 high current, backward compatible with USB 2.0/1.1
⑥	2 x DisplayPort (X70), (X71)	DisplayPort connection for digital monitor
⑦	3 × Ethernet / 2 x Ethernet • 3 × Ethernet interface (X1) P1, (X2) P1, (X3) P1, • 2 x Ethernet (X1) P1, (X2) P1	RJ45 interface (10/100/1000 Mbps); 2 x RJ45 (optional)
⑧	COM1 port (X30)	Serial interface (optional)
⑨	COM2 port (X31)	Serial interface (optional)

8.4.2 Dimension drawing - wall-mounting



All dimensions in mm

8.5 Technical specifications

8.5.1 General technical specifications

General technical specifications

Article numbers	See order documents
Dimensions (base device)	262 × 133 × 55.5 (W × H × D in mm).
Weight Base device: Device with 2x expansion	 Approx. 2.2 kg Approx. 2.7 kg
Supply voltage (DC) [1]	24 V DC [1] (-20%/+20%)
Rated current DC	Continuous current up to 4 A
Short-term voltage interruption according to Namur	Min. 15 ms (at 20.4 V) Max. 10 events/h; recovery time min. 1 s
Max. power consumption	64.8 W (at 24 V)
Degree of protection	IP 20 according to IEC 60529 [2]
Protection class	Protection class I according to IEC 61140
Safety specifications	EN 61010-1; EN 61010-2-201; UL 61010-1; UL 61010-2-201; CAN/CSA-C22.2 No. 61010-1; CAN/CSA-C22.2 No. 61010-2-201
Noise emission	<40dB (A) to DIN 45635-1
Quality assurance	In accordance with ISO 9001
Degree of pollution	Device is designed for environments with pollution degree 2
Transient overvoltages	Device is designed for connection to supply with overvoltage category II (transient overvoltages up to 2500 V)

[1] The device may only be connected to a 24 V DC power supply which meets the requirements of a safe extra-low voltage (SELV/PELV) in accordance with the standard IEC/EN/DIN EN/UL 61010-2-201. The power supply must fulfill the requirements of NEC Class 2 or Limited Energy according to IEC/EN/DIN EN/UL 61010-2-201 (see section "Connecting the power supply (Page 36)").
If the device is installed in an enclosure that complies with section 9.3.2. c) of IEC/UL/EN 61010-1 and IEC/UL/EN 61010-2-201, it can be supplied from a source "higher than NEC Class 2 / Limited Energy". The device is then classified as "OPEN EQUIPMENT".

[2] not evaluated by UL

Electromagnetic compatibility

Interference emission	EN61000-6-3; EN 61000-6-4; CAN CSA CISPR 32 Class B; KS C 9832; EN55032 Class B; FCC Class A;
Immunity with regard to conducted interference on the supply lines	± 2 kV according to IEC 61000-4-4; burst ± 1 kV according to IEC 61000-4-5; symmetrical surge ± 2 kV according to IEC 61000-4-5; asymmetrical surge
Noise immunity on signal lines	± 1 kV to IEC 61000-4-4; Burst; Length < 3 m ± 2 kV in accordance with IEC 61000-4-4; Burst; length > 3 m ± 2 kV in accordance with IEC 61000-4-5; Surge; length > 30 m
Immunity to electrostatic discharge	± 6 kV contact discharge in accordance with IEC 61000-4-2 ± 8 kV air discharge in accordance with IEC 61000-4-2
Immunity to RF interference	10 V/m 80-2700 MHz, 80% AM according to IEC 61000-4-3 3 V/m 2.7-6 GHz, 80% AM according to IEC 61000-4-3 10 V 10 KHz-80 MHz, 80% AM according to IEC 61000-4-6
Immunity to magnetic fields	100 A/m, 50/60 Hz according to IEC 61000-4-8

Motherboard

Processor	• Intel® Celeron® Processor G3902E (2 MB cache, 1.6 GHz) • Intel® Core™ i3-6102E Processor (3 MB cache, 1.9 GHz) • Intel® Core™ i5-6442EQ Processor (6 MB cache, up to 2.7 GHz) • Intel® Xeon® Processor E3-1505L v5 (8 MB cache, up to 2.8 GHz)
Main memory	Memory modules without ECC: • 4 GB DDR4-SDRAM SODIMM • 8 GB DDR4-SDRAM SODIMM • 16 GB DDR4-SDRAM SODIMM Memory module with ECC (not combinable with i5 CPU): • 8 GB DDR4-SDRAM SODIMM • 16 GB DDR4 SDRAM SODIMM
Buffer memory [1]	512 kB NVRAM optional
Expansion card slots	up to 2 x PCIe cards can be used Max. length of PCIe cards: 175 mm max. permitted power losses: 8 W per PCIe card, 12 W in total

[1] For devices with retentivity

Drive and memory media

Hard disk drive (optional)	2.5", ≥ 320 GB, SATA
Solid State Disk (optional)	2.5", ≥ 240 GB, SATA (optional) and 480 GB SATA (optional)
CFast card (optional)	• 2 GB or • 4 GB or • 8 GB or • 16 GB or • ≥ 30 GB

Graphics

Graphics controller	Intel® HD Graphics 510 / 530 / P530 (depending on CPU type)
Graphics memory	Occupied in main memory (dynamic UMA)
Graphics resolution	Maximum 4096 x 2304 pixels

Ports

COM 1 (X30), COM 2 (X31) (optional)	RS232/RS422/RS485, 115 Kbps max., 9-pin D-SUB male (+-12V)
2 x DisplayPort (DPP) [3] • 2 x DisplayPort (X70), (X71)	Connection of display devices with DisplayPort connection (X70), (X71) (per interface: 3.3 V / 500 mA)
Keyboard	USB support
Mouse	USB support
USB • 4 x USB interface: (X60), (X61), (X62), (X63)	4 x USB 3.0 (+ 5.0 V), max. 2 high current (0.9 A each) can be operated simultaneously
Ethernet [1] • 3 x Ethernet interface: (X1) P1, (X2) P1, (X3) P1	3 × Ethernet interface (RJ45) (X1) P1, (X2) P1, (X3) P1 (Intel 1x I219LM, 2 x I210) 10/100/1000 Mbps, electrically isolated, teaming-capable [2]

[1] For unique labeling, the Ethernet interfaces are numbered on the enclosure. The numbering by the operating system can differ.

[2] Teaming can be set and initiated in the configuration interface. In teaming operation, jumbo frames, e.g. for the camera application, are not supported.

[3] The DisplayPort interfaces (X70), (X71) are compatible with DisplayPort V1.2.

8.5.2 Ambient conditions

Climatic Conditions

Temperature	Tested to IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14
- During operation	**Horizontal mounting position:** Operation with hard disk: • with up to 2 expansion cards (max. load 12 W): +5 to +35 °C [1] Operation with CFast card and/or SSD: • with up to 2 expansion cards (max. load 12 W): 0 to +45 °C [1] Operation with CFast card: • with up to 2 expansion cards (max. load 12 W): 0 to +50° C [1] • Without expansion cards: 0 to +55° C [1] **Vertical / portrait mounting position:** Operation only with CFast card and/or SSD drive: • with up to 2 expansion cards (max. load 12 W): 0 to +45 °C [1] **Suspended mounting position:** Operation with CFast card • Without expansion cards: 0 to +30° C [1] [1] This information applies to the setting "Standard" in the BIOS Setup, Menu "Power" > "Power&Performance" > "CPU Power Management Control" > "CPU Power Level"; the ambient temperature must be reduced by 5 °C for the setting "Performance Optimized".
- Storage/transport	-40°C to +60°C (for device with HDD) or -40°C to +70°C (for devices with CFast or SSD)
- Gradient	Operation: Max. 10°C/h; Storage: 20°C/h; no condensation
Relative humidity - During operation - Storage/transport	tested to IEC 60068-2-78, IEC 60068-2-30 0 to 30 °C: 5-80%; decreasing linearly to 5-25% at 55° C 5% to 95% at 25 °C (no condensation)
Barometric pressure - During operation - Storage/transport	 1080 up to 689 hPa, (corresponds to an elevation of -1000 to 3000 m) 1080 to 660 hPa (corresponds to an altitude of -1000 m to 3500 m)