Panel-PC Barebone P15AL01-i5 Blue

Intel Core i5-1235 ULV CPU

INDUSTRY-GRADE PANEL PC WITH 15.6" DISPLAY

The high-value P15AL01-i5 Panel PCs comes with a rugged Aluminium chassis with a IP65 compliant front panel and is powered by an Intel Core-i5 ULV processor. The display is Full-HD and sports a projected capacitive 10-point multi-touch function. With its passive cooling the system is virtually noiseless, maintenance-free and approved for 24/7 nonstop operation. This makes it the perfect choice for rugged and public applications such as healthcare, hospitality sector, digital signage, POI, POS, Kiosk and industry.





Images for illustration only.

15.6" Touch Display · 2x 32 GB Support · NVMe SSD Support · WLAN/BT Ext. Antennas · HDMI 2.0b & VGA Port · 4x USB 3.2 4x USB 2.0 · Serial Port · DC-In 9-36V Wide Voltage Range · 100 x 100 mm VESA mount · Fanless · IP65 (Front) · 24/7 Support

ROBUST CHASSIS

■ Robust Aluminium chassis (3 mm thickness) with magnetic cover for the I/O connectors ■ IP65 front panel protection ■ Dimensions (WHD): 394.3 x 256.2 x 48.9 mm ■ Net weight: 4.6 kg ■ Fanless cooling system ■ Operating temperature: 0 ~ 40 °C ■ Humidity: 20 ~ 80% RH non-condensing ■ Mounting holes for 100 x 100 mm VESA mount (VESA mount and stand are not included)

TOUCH DISPLAY

■ High quality 15.6" / 39.6cm display with 1920x1080 pixels ■ Brightness: 350 cd/m2, Contrast ratio 1000:1, Viewing angle: 89° (all directions) ■ Capacitive touch panel with 10-point multi-touch ■ Supports two additional displays with HDMI 2.0b and VGA ports

OPERATING SYSTEM

■ An operating system is not included.
■ Supports Windows 10, Windows 11 and Linux (64-bit)

PROCESSOR & GRAPHICS

■ Intel Core i5-1235U, 2 P-Cores, 8 E-Cores, 12 MB Cache
■ "Alder Lake" ULV Prozessor (Gen 12), 15 W TDP
■ Integrated Intel® Iris® Xe graphics

MEMORY SUPPORT

■ 2x 262-pin SO-DIMM slot
■ Supports Dual Channel, up to 2x 32 GB DDR5-4800

STORAGE

■ M.2-2280/2242 M slot supports one SSD card (supports PCIe X4 NVMe and SATA interface)

BACK PANEL CONNECTORS

■ HDMI 2.0b ■ VGA ■ 4x USB 3.2 Gen 2 ■ 4x USB 2.0
■ 2x 2.5 Gbps LAN (Intel i226LM + i226V) ■ COM Port (RS232)
■ Mic-in and Line-out (Realtek) ■ DC-input: 9-36V

OTHER FEATURES

■ WLAN 802.11ac and BT 4.2 with two external antennas
■ Hardware TPM v2.0 Infineon SLB9670VQ2 onboard
■ Full-HD Webcam ■ Two speakers (2x 2W)

POWER SUPPLY

■ External 90W/19V power adapter
■ AC input 100~240V 50~60 Hz, 3-pin connector
■ DC-input: 9-36V (Wide Voltage Range)

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Shuttle Panel-PCs with Intel Core Gen12 Processors "Alder Lake-U"

Touch Screen	Application	Panel-PC Model	Intel Processor	UPC Bar Code	Color (front / rear)	WLAN Antennas	DC Input	Medical Features
15.6" Full-HD 350 Nits	Industrial	P15AL01-i5	Core i5-1235U	887993007885	Black / Blue	external	9-36 V	–
	Medical	M15AL01-i5	Core i5-1235U	887993007526	White / White	internal	19 V	Anti-bacterial coating, POAG pin, Medical power adapter
21.5" Full-HD 500 Nits	Industrial	P21AL01-i3 P21AL01-i5	Core i3-1215U Core i5-1235U	887993007366 887993007359	Black / Blue	internal	19 V	–
	Medical	M21AL01-i5	Core i5-1235U	887993007588	White / White	internal	19 V	Anti-bacterial coating, POAG pin, Medical power adapter

Front and Back Panel

Front panel



1. 15.6" Touch Panel
2. Full-HD Webcam

Optional Shuttle Accessory:
Robust Dual VESA Stand POV21
The flexible design supports one or two Panel-PCs or Displays with 75x75 mm or 100x100 mm VESA mount up to 21.5" display size and a total weight of up to 20 kg. POV21 features optimised cable management with magnetic back cover and is flexible and easy to adjust.



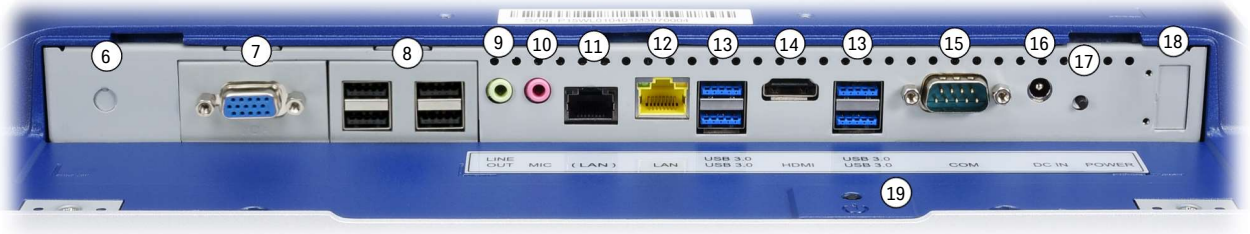
Rear View





3. 2x SMA connectors with WLAN antennas
4. Screw threads for VESA mount (100x100 mm)
5. Mounted back panel cover
6. Perforation for optional Potential Equalization Pin (POAG) according to DIN 42801
7. D-Sub/VGA port
8. 4x USB 2.0 Type A port
9. Audio Line Out (Headphones output)
10. Microphone input
11. 2.5 Gbps LAN port (Intel i226V)
12. 2.5 Gbps LAN port (Intel i226LM)
13. 4x USB 3.2 Gen 2 Type A port
14. HDMI 2.0b graphics port
15. RS232 Serial COM port
16. DC-in connector for power adapter
17. Power Button
18. Perforation (reserved)
19. Second Power Button

Back Panel



SPECIAL FEATURES



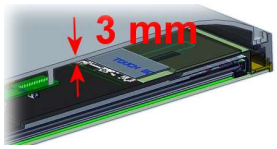
Reliable nonstop operation

The Shuttle Panel PC P15AL01-i5 is officially approved for 24/7 permanent operation at an ambient temperature of up to 40 °C. Thanks to its low power consumption and completely passive cooling, this PC runs highly reliably and is virtually noiseless.



15.6“ Full-HD Touch Screen

This Panel PC has a high-grade 15.6" (39.6 cm) Full-HD display with high brightness (350 cd/qm) and low viewing angle dependence (±85°). The capacitive multitouch screen can also be operated with gloves and allows precise input with two or more fingers at the same time.



Robust Aluminium Chassis

Rear chassis and middle frame are completely made of high-grade Aluminium of 3 mm thickness.



Protection Class IP65

The front panel is dust-protected and protected from splashing of water according to IP protection class 65. Consequently, this All-in-One PC can be used for those indoor applications, where the touchscreen may be exposed to humidity and splashing of water. This is particularly welcome in restaurants, laboratories, production or other places.



Triple Display Support

In addition to the built-in display two more independent Full-HD displays can be connected via HDMI 2.0b and VGA.



VESA Mounting

The Shuttle Panel PC P15AL01-I5 has four threaded holes for mounting a 100 x 100 mm VESA mount. For example, a suitable stand, VESA arm or wall mount can be used to mount the Panel PC.
Note: VESA mount and stand are not included in the scope of delivery.



Optional Stand „POV21“

A stand is not included in the scope of delivery. With “POV21”, Shuttle offers a suitable, robust stand made of high-quality aluminum alloy. Optionally, two devices can also be mounted on this stand (e.g. for a Panel PC and an additional display).



Optimized cable management

The connections on the back panel are facing down and hidden by a cover. The cover snaps in magnetically and is also fixed with screws.

Through a small opening the cables are led away from the PC in an orderly fashion This leads to an effective cable management making for a clean, tidy appearance.



Hidden Power Button

Since the primary power button is not accessible when the cover is on, there is also a second power button hidden on the back. You can also enable the “Restore on AC Power Loss” option in the BIOS so that it always starts immediately once voltage is applied.



Dual Intel 2.5 Gbps Network

The Shuttle Panel PC P15AL01-i5 supports Dual 2.5 Gbps LAN with Intel network adapters, which are known for their excellent performance and driver compatibility and therefore are the preferred choice in professional environments.



Potential equalization (opt.)

A 6.5 mm perforation allows the installation of an optional potential equalization pin (POAG) according to DIN 42801 in order to connect the Panel PC with a suitable potential equalization terminal, that can be required in medical environments, for example. (order no. CPOA01)



External WLAN Antennas

P15AL01 is delivered with two external omnidirectional antennas, which ensures better reception compared to integrated antennas.



Other connection options

The backpanel has two sections, which can be assigned with other connectors, including HDMI, DVI, VGA, 4x USB and COM (RS232).

Comparison with the previous model

MODEL	P15AL01-i5 (New)	P15WL01-i5
Processor	**Intel Core i5-1235U** Intel Gen. 12 "Alder Lake-U", TDP= 15W, Intel 7 (10 nm) Technology	**Intel Core i5-8365UE** Intel Gen. 8 "Whiskey Lake-U", TDP= 15W, 14 nm Technology
RAM memory support	2x SO DIMM, 262 pins max. 2x 32 GB DDR5-4800 (or higher)	2x SO DIMM, 260 pins max. 2x 32 GB DDR4-2400 (or higher)
M.2-2280 Slot	M.2-2280M slot for M.2 SSD cards Supports M.2 SSD cards with 80 and 42 mm in length Supports NVMe/PCIe Gen4 X4 and SATA	M.2-2280M slot for M.2 SSD cards Supports M.2 SSD cards with 80 and 60 mm in length Supports NVMe/PCIe Gen3 X4 and SATA
15.6" Display	Resolution 1920 x 1080 Brightness: 350 cd/qm (nits) Viewing angle: 89° all directions	Resolution 1920 x 1080 Brightness: 350 cd/qm (nits) Viewing angle: 89° all directions
Intel vPro/AMT	No	vPro/AMT is supported
TPM	Hardware TPM 2.0 module (Infineon SLB9670VQ2)	Hardware TPM 2.0 module (Infineon SLB9670VQ2)
Dual LAN	2x Intel LAN with 2.5 Gbps (Intel i226V and i226LM)	2x Intel LAN with 1 Gbps (Intel i211 and i219LM)
WLAN	Realtek RTL8821CE, Wi-Fi 5 (WLAN-ac) Two external antennas	Realtek RTL8821CE, Wi-Fi 5 (WLAN-ac) Two external antennas
Grafik Ports	HDMI 2.0b VGA	HDMI 1.4b VGA
USB Ports	4x USB 3.2 Gen2 (10 Gbps) 4x USB 2.0	4x USB 3.2 Gen1 (5 Gbps) 4x USB 2.0
COM Ports	1x Serial COM port (RS232)	1x Serial COM port (RS232)
Front View		
Rear View		
I/O Ports		

Shuttle Panel-PCs with Intel Gen12 Prozessor

Display Size	15.6“ Display		21.5“ Display	
Model	**P15AL01-i5**	**M15AL01-i5**	**P21AL01-i3/i5**	**M21AL01-i5**
Application	**Industrial Panel-PC**	**Medical Panel-PC**	**Industrial Panel-PC**	**Medical Panel-PC**
Chassis Color	Front: black Back: dark blue	Front: white Back: white	Front: black Back: dark blue	Front: white Back: white
Medical Coating	–	Anti-Bacterial Coating (front and rear)	–	Anti-Bacterial Coating (front and rear)
Processor Options	Intel Core i5-1235U	Intel Core i5-1235U	Intel Core i3-1215U or Intel Core i5-1235U	Intel Core i5-1235U
Display Features	Resolution: 1920 x 1080 Brightness: 350 nits 10-point capacitive touch	Resolution: 1920 x 1080 Brightness: 350 nits 10-point capacitive touch	Resolution: 1920 x 1080 Brightness: 500 nits 10-point capacitive touch	Resolution: 1920 x 1080 Brightness: 500 nits 10-point capacitive touch
I/O Ports	HDMI 2.0b, VGA 4x USB 3.2, 4x USB 2.0 2x Intel LAN (2.5G), 2x Audio, 1x COM	HDMI 2.0b, VGA 4x USB 3.2, 4x USB 2.0 2x Intel LAN (2.5G), 2x Audio, 1x COM	HDMI 2.0b, VGA 4x USB 3.2, 4x USB 2.0 2x Intel LAN (2.5G), 2x Audio, 2x COM	HDMI 2.0b, VGA 4x USB 3.2, 4x USB 2.0 2x Intel LAN (2.5G), 2x Audio, 2x COM
POAG *)	–	POAG connector with cable	–	POAG connector with cable
M.2-Slot for SSD	Supports M.2-2280 SSD card PCIe Gen4 x4 (NVMe) / SATA	Supports M.2-2280 SSD card PCIe Gen4 x4 (NVMe) / SATA	Supports M.2-2280 SSD card PCIe Gen4 x4 (NVMe) / SATA	Supports M.2-2280 SSD card PCIe Gen4 x4 (NVMe) / SATA
2.5” Bay for SSD	–	–	Supports 2.5” SSD (SATA)	Supports 2.5” SSD (SATA)
WLAN Antenna	External Antennas	Internal Antennas	Internal Antennas	Internal Antennas
Power Adapter	Standard Power Adap. 90W IEC 62368-1 / 60950-1	Medical Power Adapter 90W IEC 60601-1 / EN55011	Standard Power Adap. 90W IEC 62368-1 / 60950-1	Medical Power Adapter 90W IEC 60601-1 / EN55011
DC-Input **)	DC-Input supports 9-36V	DC-Input supports 19V	DC-Input supports 19V	DC-Input supports 19V
Front View				
Rear View				

***) POAG:** Shuttle Medical Panel-PCs come with an **Potential Equalization Pin** (POAG) in order to connect the PC with a potential equalization terminal.
****) the DC-Input** normally supports 19V input voltage only. However, an optional voltage regulator module VOL01 can be added to support an extended voltage range of 9...36V. Among the Panel PCs listed above, only the P15AL01-i5 model is already equipped with VOL01 as standard.

SHUTTLE Panel PC P15AL01-i5 — SPECIFICATIONS

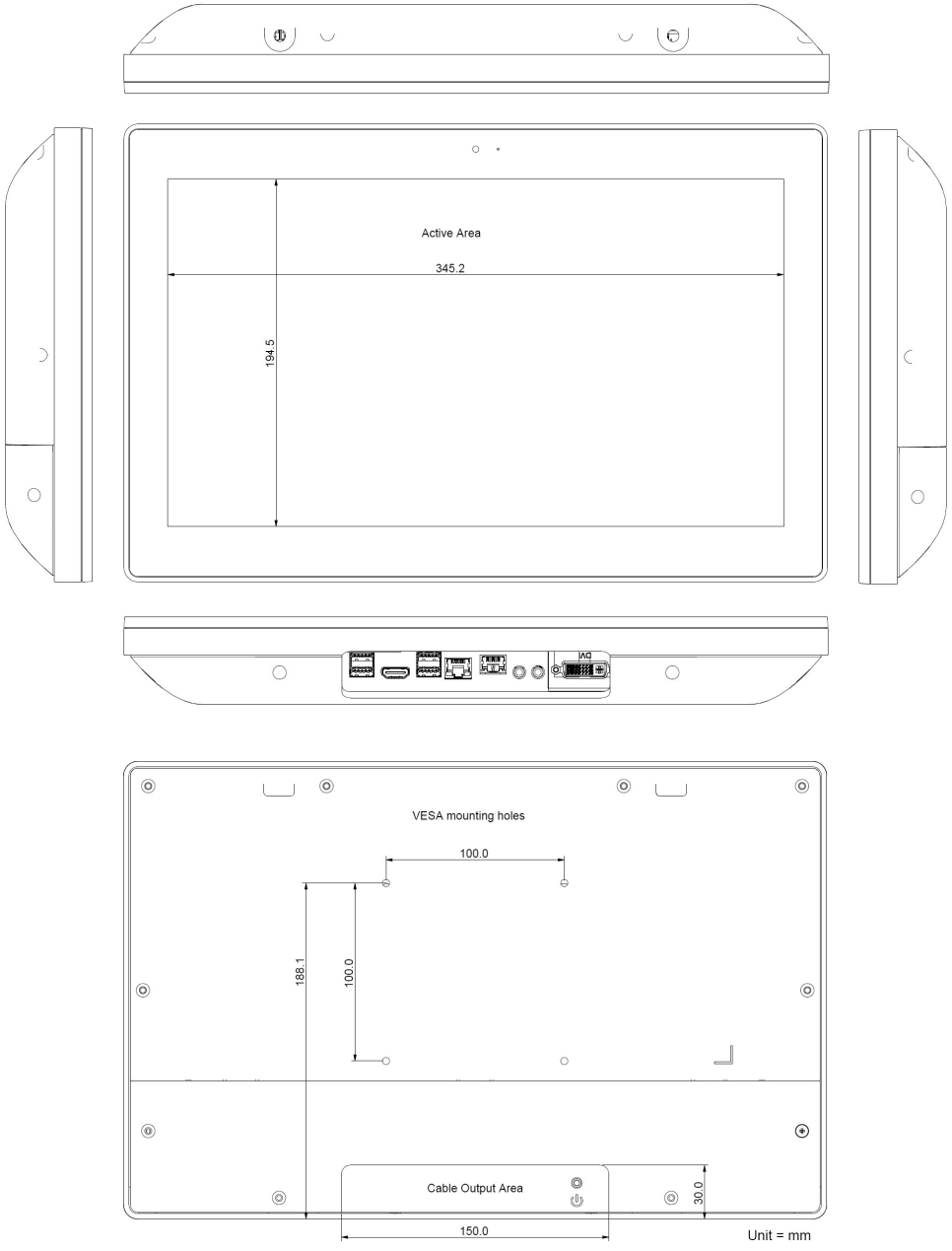
FANLESS AND SILENT	Passive heatpipe cooling, absolutely no fan noise Perfect for noise-sensitive environments Fanless, dust-free and thus virtually maintenance-free
24/7 NONSTOP OPERATION	This device is approved for 24/7 permanent operation. Requirements: free circulation of air amongst the PC must be guaranteed.
IP65 PROTECTED	The front panel is protected from dust and jets of water according to protection class IP65.
CHASSIS	Robust chassis with cover for the I/O connectors Rear/cable cover and middle frame are all made of Aluminium Rear cover chassis thickness: 3.0 mm Colour: Display Frame = black, back side = dark blue Dimensions: 394.3 x 256.2 x 48.9 mm (W x H x D) Net weight: 4.6 kg 100x100 mm VESA mountable, 4x M4x6L screws required) VESA mount and stand are not included in the scope of delivery. Shuttle recommends the optional Shuttle Stand POV21.
OPERATING SYSTEM	This system comes without operating system. It is compatible with: - Windows 10 (64-bit) - Windows 11 (64-bit) - please enable TPM function - Linux (64-bit)
TOUCHSCREEN	Touchscreen function supports fingertip input Projected capacitive touch panel with 10-point multi-touch Supports input with gloves (PVC, cotton, cotton/linen) Stylus pen not supported
DISPLAY (39.6 CM / 15.6")	39.6 cm / 15.6" LC display Type: a-Si TFT-LCD Ratio: 16:9 wide-screen panel Native resolution: 1920 x 1080 = 2 Megapixel (Full HD / 1080p) Viewing angle (left/right/up/down): 89° Brightness: 350 cd/sqm or nits (typ.) Contrast: 1000:1 (typ.) Signal Interface: eDP 30 pins (2 lanes)
PROCESSOR	Model: Intel Core i5-1235U (ULV) 12th Generation Intel Core, code name "Alder Lake-U" System-on-a-chip architecture (SoC) with integrated memory and graphics controller FCBGA1744 package - directly soldered onto the mainboard Processor cores: total 10 - Performance Cores: 2 P-Cores (4 Threads) at 1.3 / 4.4 GHz basis/turbo clock - Efficient Cores: 8 E-Cores at 0.9 / 3.3 GHz basis/turbo clock Smart Cache: 12 MB TDP wattage: 15 W maximum Manufacturing process: Intel 7 (10 nm) Maximum Tjunction Temperature: 100 °C
INTEGRATED GRAPHICS	Intel® Iris® Xe Graphics with 80 Execution Units (EU) Graphics Max Dynamic Frequency: 1.20 GHz Supports up to three independent screens: 1) Built-in Full-HD display (supports 1080p/60) 2) HDMI 2.0b port (supports 1080p/60 and 2160p/60) 3) VGA port (supports 1080p/60)
UEFI BIOS	Supports resume after power failure Supports Wake on LAN (WOL) Supports Power on by RTC Alarm Supports boot from M.2 SSD cards and USB devices AMI BIOS in 32 MB EEPROM with SPI interface Supports hardware monitoring and Watchdog function Supports Unified Extensible Firmware Interface (UEFI)
TPM MODULE	Hardware Trusted Platform Module (Infineon SLB9670VQ2 TPM 2.0)

POWER ADAPTER	External 90 W power adapter (fanless) Input: 100~240 V AC, 50/60 Hz Output: 19 V DC, 4.74 A, max. 90 W DC Connector: 5.5/2.5 mm (outer/inner diameter) AC mains cable: 3 pins, ca. 1.8 m length, with C5/C6 coupler (called "Mickey Mouse" or "Clover-leaf") for the power adapter and CEE-7/7 plug with earth-contact (type E+F) for the power outlet
DC INPUT CONNECTOR (WIDE VOLTAGE RANGE)	DC Input Connector: 5.5 / 2.5 mm (outer/inner diameter) The DC input of the computer supports an extended voltage range of 9 to 36V for an external power supply.
MEMORY SUPPORT	2x SO-DIMM slot with 262 pins Supports DDR5-4800 (PC5-38400) SDRAM at 1.1 V Supports Dual Channel mode Supports a maximum of 32 GB per DIMM, maximum total size: 64 GB
M.2 SLOT FOR SSDs	The M.2 2280 M slot provides the following interfaces: - PCI-Express Gen. 4.0 X4 - SATA v3.0 (max. 6 Gbps) It supports M.2 SSD cards with a width of 22 mm and a length of 80 or 42 mm (type 2280 or 2242). Supports M.2 SATA SSDs (with B+M key) and M.2 PCIe NVMe SSDs (with M key) with auto interface detect
WEBCAM	Integrated Full-HD 2.0 Megapixel (1920 x 1080) camera
AUDIO AND SPEAKERS	Audio Realtek® ALC888S High-Definition Audio Two analog audio connectors (3.5 mm) on the back panel: 1) 2 channel line out (headphones) 2) microphone input Digital multi-channel audio output: via HDMI Two Two built-in speakers (2x 2W Stereo)
DUAL INTEL 2.5G LAN	Dual network with RJ45 ports and Intel i226 network chips (black connector: Intel i226V, yellow connector: Intel i226LM) Supports 10 / 100 / 1000 / 2500 MBit/s operation Supports WAKE ON LAN (WOL) Supports network boot by Preboot eXecution Environment (PXE)
WIRELESS NETWORK (WLAN)	Built-in M.2-2230-E WLAN card with two external antennas WLAN Controller Realtek RTL8821CE Supports WiFi IEEE 802.11b/g/n/ac in the 2.4 / 5 GHz band, 1T1R Supports 20 / 40 / 80 MHz channel bandwidth Security: supports WPA(-PSK), WPA2(-PSK), WEP 64/128 bit, IEEE 802.11x, IEEE 802.11i Supports Bluetooth 4.2 in the 2.4 GHz band
BACK PANEL CONNECTORS	Power Button (another button available in an easily accessible place) HDMI 2.0b (digital video+audio) D-Sub/VGA (analog video) 4x USB 3.2 Gen 2 Type A (max. 10 Gbps) 4x USB 2.0 2x Intel 2.5G LAN (RJ45, i226V and i226LM) 1x Serial Port (DB-9/D-sub, RS232) Microphone input (3.5 mm) Audio Line-out / Headphones (3.5 mm) DC-input connector for external power adapter (supports 9-36V voltage range) Perforation (6.5 mm) for an optional potential equalization pin (POAG) according to DIN 42801
OPTIONAL ACCESSORIES	**- Robust VESA Stand P0V21:** supports one or two Panel-PCs or Displays with 75x75 or 100x100 mm VESA (max. 21.5" display size and 20 kg total weight).
ENVIRONMENTAL SPECIFICATIONS	Operating temperature: 0 ~ 40 °C Storage temperature: -20 ~ 60 °C Permitted relative humidity: 20 ~ 80 % (non-condensing)

CONFORMITY AND CERTIFICATIONS	EMI: CE, FCC, BSMI Safety: CB, cTUVus, BSMI RF: EU, US, Taiwan This device is classed as a technical information equipment (ITE) in Class A. Class A is for products used in commercial and industrial areas. The CE-mark approves the conformity by the EU directives: (1) 2014/30/EU relating to electromagnetic compatibility (EMC), (2) 2014/35/EU relating to Electrical Equipment designed for use within certain voltage limits (LVD), (3) 2009/125/EC relating to eco design requirements for energy-related products (ErP) (4) 2014/53/EU Radio Equipment Directive (RED)

SHUTTLE Panel PC P15AL01-i5 — TECHNICAL DRAWING

Overall dimensions: 394.3 x 256.2 x 48.9 mm (WHD)



VESA mount and stand are not included in the scope of delivery.

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