

## Medical Panel PC M21WL01-i5

### MEDICAL-GRADE PANEL PC WITH 21.5" TOUCH-DISPLAY

This high-value Panel PC comes with features a rugged Aluminium chassis with an anti-bacterial and anti-septic coating and IP65-rated front panel for superior hygiene and infection control. 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. Compliant with IEC 60601-1 medical safety standards for electrical devices, this Panel PC is built for reliable operation in a wide range of healthcare environments.



Images for illustration only.



### ROBUST CHASSIS

- White Color
- Robust Aluminium chassis (3 mm thickness) with magnetic cover for the I/O connectors
- IP65 front panel protection
- Dimensions (WHD): 543 x 334 x 49.9 mm
- Net weight: 7.6 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)

### MEDICAL-GRADE FEATURES

- Anti-Septic coating based on an inorganic zinc compound (front panel) and epoxy/polyester resin (rear chassis)
- Medical power adapter (90 W)
- Potential equalization pin (POAG)
- Medical certificates: cTUVus (ANSI/AAMI ES60601-1:2005/(R)2012), CB (IEC/EN 60601-1: 2005+A1: 2012), CE (EN 60601-1-2:2015, Class B), IEC 60601-1-2: 2015, FCC Part 18 (CISPR 11)

### TOUCH PANEL AND GRAPHICS

- High quality 21.5" / 54.6cm display with 1920x1080 pixels
- Brightness: 300 cd/m<sup>2</sup>, Contrast ratio 3000:1, Viewing angle: 89° (all directions)
- Capacitive touch panel with 10-point multi-touch
- Integrated Intel UHD graphics
- Support two additional displays with HDMI and DVI-I ports

### OPERATING SYSTEM

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

### PROCESSOR/GRAPHICS

- Intel Core i5-8365UE, 4 Cores, 8 Threads, 1.6-4.1 GHz, 6 MB Cache
- Supports Intel vPRO and AMT technology
- "Whiskey Lake" ULV Processor, 15 W TDP
- Integrated Intel UHD 620 graphics

### MEMORY SUPPORT

- 2x 260-pin SO-DIMM slot
- Supports Dual Channel, up to 2x 32 GB DDR4-2400

### SSD STORAGE SUPPORT

- M.2-2280/2260 M slot supports one SSD card (supports PCIe X4 NVMe and SATA interface) - facilitates real-time data processing and storage
- Swappable drive tray for 2.5"/7mm SATA SSD storage drive

### BACK PANEL CONNECTORS

- HDMI 1.4b
- DVI-I
- 4x USB 3.2 Gen 1
- Dual Gigabit LAN (Intel i219LM/i211)
- 3x COM Ports (1x RS232 and 2x RS232/422/485)
- Mic-in and Line-out (Realtek ALC662/ALC888S)
- DC-input 19V (optional wide-range 9~36V on request)
- Power Button and Easy Rock Switch
- Potential Equalization Pin (POAG, DIN 42801) including POAG cable

### OTHER FEATURES

- WLAN 802.11ac and BT 4.2 with two internal antennas
- Hardware TPM v2.0 Infineon SLB9670VQ2 onboard
- Full-HD Webcam
- Two internal speakers (2x 2W Stereo)
- AMI BIOS, 32 MB SPI ROM supports Intel vPro and AMT features
- Embedded I/O controller: ITE IT8528E/FX

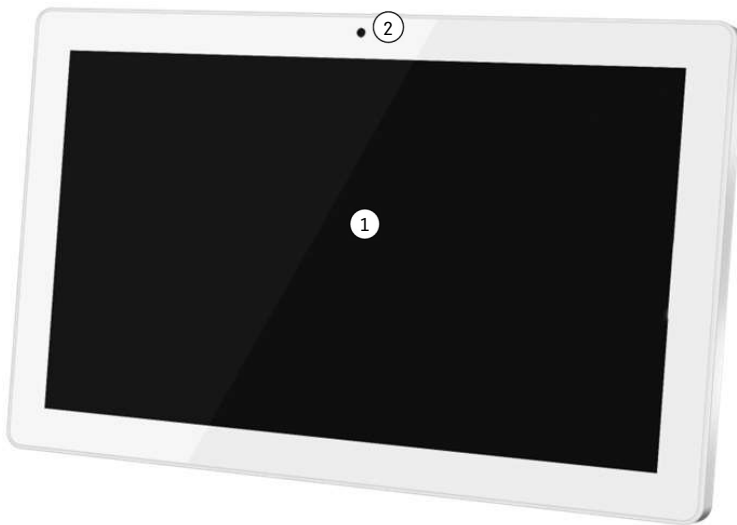
### POWER SUPPLY

- Medical power adapter 90W/19V (IEC 60601-1 / EN55011)
- AC input 100~240V 50~60 Hz, 3-pin connector
- DC input: 19V (optional 9~36V on request)



## Front and Back Panel

Front panel



- 1. 21.5" Touch Panel
- 2. Full-HD Webcam

Rear View



- 3. Screw threads for VESA mount (100x100 mm)
- 4. Swappable 2.5" drive tray for SSD (7 mm)
- 5. Potential Equalization Pin (POAG, DIN 42801)
- 6. DVI-I graphics port
- 7. 2x RS232/422/485 Serial COM Port
- 8. Audio Line Out (Headphones output)
- 9. Microphone input
- 10. Gigabit LAN port (Intel i211)
- 11. Gigabit LAN port (Intel i219LM)
- 12. 4x USB 3.2 Gen 1 Type A port
- 13. HDMI 1.4b graphics port
- 14. RS232 Serial COM Port
- 15. DC-in connector for power adapter
- 16. Power button
- 17. Easy Rock Switch
- 18. Rear cover with magnet holders

Back Panel



## SPECIAL FEATURES



### Reliable nonstop operation

The Shuttle Panel PC M21WL01-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.



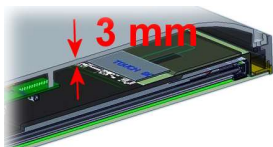
### 21.5" Full-HD Touch Screen

This Panel PC has a high-grade 21.5" Full-HD display with high brightness and low viewing angle dependence ( $\pm 89^\circ$ ). The capacitive multitouch screen can also be operated with gloves and allows precise input with two or more fingers at the same time.



### Anti-Septic Coating

The housing of this Panel PC comes with an anti-bacterial and anti-septic coating based on an inorganic zinc compound as antimicrobial substance to reduce the possibility of infection or sepsis through microorganisms like bacteria.



### 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, the touchscreen can be cleaned very easily and effectively. This is particularly welcome in hospitals, doctor's offices, laboratories, aged care centres or other places.



### VESA Mounting

The Shuttle Panel PC M21WL01-i5 has four threaded holes for mounting a 100 x 100 mm VESA mount, which is not included. 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.



### 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 power button is not accessible when the cover is on, there is also a Rock Switch 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.



### External 2.5" Bay

A 2.5" drive bay for an SSD drive is accessible from the outside for easy swapping of storage for installation and upgrade convenience. Additionally, an SSD card in M.2-2280/2260 format can be installed inside.



### Triple Display Support

In addition to the built-in display two more independent Full-HD displays can be connected via HDMI 1.4b and DVI-I. The DVI-I port also provides the output signal for analog VGA displays.



### Triple COM Port

The numerous connections include three serial COM ports with D-Sub connectors, two of which also support the RS422/485 standard.



### Dual Intel Gigabit Network

The Shuttle Panel PC M21WL01-i5 supports Dual Gigabit 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

This PanelPC comes with an Potential Equalization Pin (POAG) according to DIN 42801 in order to connect the Panel PC with a suitable potential equalization terminal, that might be required in medical environments.



### Modification on request

Upon request on a project-related basis, the Shuttle Panel PC M21WL01-i5 can be ordered with external WLAN antennas or other connections (e.g. DisplayPort, additional USB ports or a second HDMI port).



### Medical Power Adapter

The highly efficient external power adapter is designed for medical applications. It is certified according Medical Safety Standard IEC 60601-1 and also meets EN55011 and FCC Class B.

## SHUTTLE Panel PC M21WL01-i5 – SPECIFICATIONS

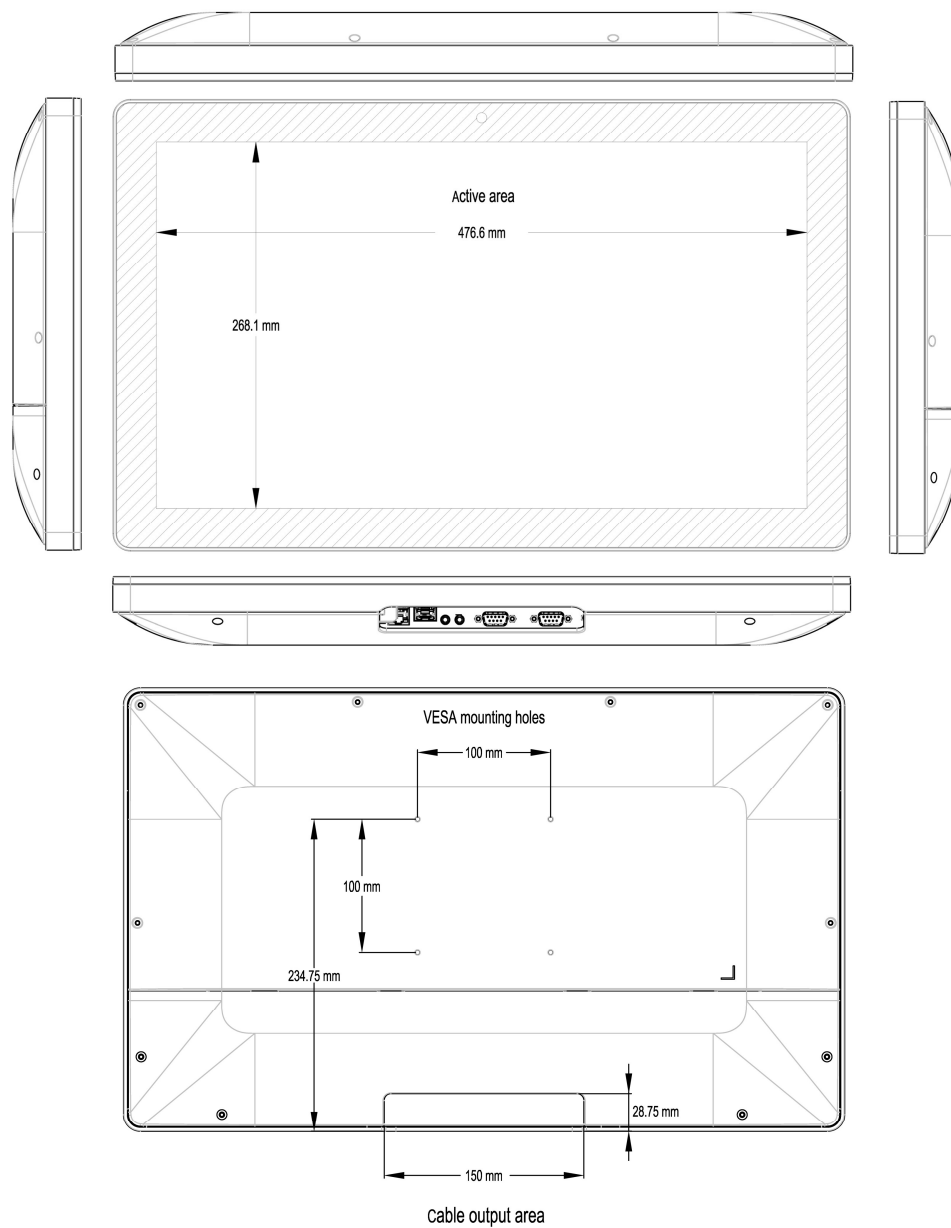
<b>FANLESS AND SILENT</b>	<p>Passive heatpipe cooling, absolutely no fan noise</p> <p>Perfect for noise-sensitive environments</p> <p>Fanless, dust-free and thus virtually maintenance-free</p>
<b>24/7 NONSTOP OPERATION</b>	<p>This device is approved for 24/7 permanent operation.</p> <p>Requirements:</p> <ul style="list-style-type: none"> <li>- Free circulation of air amongst the PC must be guaranteed.</li> <li>- If a SSD is installed, this must also be approved for permanent operation by its manufacturer.</li> </ul>
<b>IP65 PROTECTED</b>	<p>The front panel is protected from dust and jets of water according to protection class IP65.</p>
<b>CHASSIS</b>	<p>Anti-Septic coating based on an inorganic zinc compound (front panel) and epoxy/polyester resin (rear chassis)</p> <p>Robust chassis with cover for the I/O connectors</p> <p>Rear/cable cover and middle frame are all made of Aluminium</p> <p>Rear cover chassis thickness: 3.0 mm</p> <p>Color: White</p> <p>Dimensions: 543 x 334 x 49.9 mm (W x H x D)</p> <p>100x100 mm VESA mountable, 4x M4x6L screws required)</p> <p>VESA mount and stand are not included in the scope of delivery.</p> <p>Net weight: 7.6 kg</p>
<b>OPERATING SYSTEM</b>	<p>This system comes without operating system. It is compatible with:</p> <ul style="list-style-type: none"> <li>- Windows 10 ( 64-bit)</li> <li>- Windows 11 ( 64-bit)</li> <li>- Linux (64-bit)</li> </ul>
<b>TOUCHSCREEN</b>	<p>Touchscreen function supports fingertip input</p> <p>Projected capacitive touch panel with 10-point multi-touch and antibacterial coating</p> <p>Supports input with gloves (PVC, cotton, cotton/linen)</p> <p>Stylus pen not supported</p>
<b>DISPLAY (54.6 cm / 21.5")</b>	<p>54.6 cm / 21.5" LC display</p> <p>Type: a-Si TFT-LCD, VA mode</p> <p>Ratio: 16:9 wide-screen panel</p> <p>Native resolution: 1920 x 1080 = 2 Megapixel (Full HD / 1080p)</p> <p>Viewing angle (left/right/up/down): 89°</p> <p>Brightness: 300 cd/sqm or nits (typ.)</p> <p>Contrast: 3000:1 (typ.)</p> <p>Viewing Angle: 89°/89°/89°/89° (typ.)</p> <p>Backlight lifetime: 30.000 hours</p>
<b>PROCESSOR</b>	<p>Model: Intel Core i5-8365UE (ULV)</p> <p>System-on-a-chip architecture (SoC) with integrated memory and graphics controller</p> <p>FCBGA1528 package - directly soldered onto the mainboard</p> <p>Code name: Whiskey Lake-U (8th Generation Intel Core)</p> <p>Cores / Threads: 4 / 8</p> <p>Clock rate: 1.6 GHz, Turbo clock rate: 4.1 GHz</p> <p>L3 Smart Cache: 6 MB</p> <p>TDP wattage: 15 W maximum</p>
<b>INTEGRATED GRAPHICS</b>	<p>Intel UHD Graphics 620</p> <p>GPU clock frequency: 300~1050 MHz</p> <p>Execution Units (EUs): 24</p> <p>Supports up to three independent screens:</p> <ol style="list-style-type: none"> <li>1) Built-in Full-HD display (supports 1080p/60)</li> <li>2) HDMI 1.4b connector (supports 1080p/60 and 2160p/30)</li> <li>3) DVI-I connector (supports 1080p/60)</li> </ol> <p>Note: DVI-I also supports analog VGA displays with an optional adapter</p>
<b>UEFI BIOS</b>	<p>Supports resume after power failure</p> <p>Supports Wake on LAN (WOL)</p> <p>Supports Power on by RTC Alarm</p> <p>Supports boot from M.2 SSD cards and USB devices</p> <p>AMI BIOS in 32 MB EEPROM with SPI interface</p> <p>Supports hardware monitoring and Watchdog function</p> <p>Supports Unified Extensible Firmware Interface (UEFI)</p>

INTEL vPRO & AMT	<p>Intel® vPro™ is a brand name for a specific set of management and security technologies. Intel® Active Management Technology (AMT) is a subset of Intel vPro. This technology allows remote management of PCs, even in power-off mode or with non-functional operating systems. You can audit, repair and restore AMT-based platforms in a LAN. These functions can increase the uptime of desktops with lower maintenance costs.</p> <p><b>Note:</b> Intel vPro requires appropriate software.</p> <p>The Intel® MEBX configuration user interface can be accessed after pressing CTRL-P at the beginning of the boot process. Only the Intel i219 LAN port (yellow color) supports the Intel vPro® function.</p>
TPM MODULE	Hardware Trusted Platform Module (Infineon SLB9670VQ2 TPM 2.0)
POWER ADAPTER	<p>External 90 W power adapter (fanless)          Model FSP090-RBBM1          Medical Safety IEC 60601-1, Meet EN55011 and FCC Class B          Input: 90~264 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, 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          DOE Energy Efficiency Level VI          No Load Power Consumption ≤ 0.21W          Dimensions: 140 x 71 x 22 mm</p>
DC INPUT CONNECTOR	<p>DC Input Connector: 5.5 / 2.5 mm (outer/inner diameter)          The DC-input of the computer supports an external power source with 19V ± 5%.</p>
WIDE DC-IN RANGE (OPTIONAL)	<p>The DC input voltage range can optionally be extended to support 9-36 V.          For this purpose, an accessory item must be purchased separately.</p>
MEMORY SUPPORT	<p>2x SO-DIMM slot with 260 pins          Supports DDR4-2400 (PC4-19200) SDRAM at 1.2 V          Supports Dual Channel mode          Supports a maximum of 32 GB per DIMM, maximum total size: 64 GB          Supports two unbuffered DIMM modules (no ECC or registered)</p>
2.5" BAY SUPPORTS SSDs	<p>Supports one SATA SSD drive in 6.35 cm / 2.5" format and up to 7 mm in height          The SATA 3.0 interface supports up to 600 MB/s of data transfer speed (6 Gbit/s)          The drive can quickly be installed via the swappable drive tray.          No Hot-Swap capability (exchanging during a running operation)</p>
M.2 SLOT FOR SSDs	<p>The M.2 2280 M slot provides the following interfaces:          - PCI-Express Gen. 3.0 X4          - SATA v3.0 (max. 6 Gbps)          It supports M.2 cards with a width of 22 mm and a length of 60 or 80 mm (type 2260, 2280).          Supports M.2 SATA SSDs (with B+M key) and M.2 PCIe NVMe SSDs (with M key) with auto detection</p>
WEBCAM	Integrated Full-HD 2.0 Megapixel (1920 x 1080) camera
AUDIO & SPEAKERS	<p>Audio Realtek® ALC662 or 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 built-in speakers (2x 2W Stereo)</p>
DUAL GIGABIT LAN	<p>Dual network with two RJ45 ports          Used network chips:          1) Intel i211 Ethernet Controller with MAC, PHY and PCIe interface          2) Intel i219LM PHY connected to the MAC of the processor          Supports 10 / 100 / 1000 MBit/s operation          Supports WAKE ON LAN (WOL)          Supports network boot by Preboot eXecution Environment (PXE)          Supports Teaming mode</p>

<b>WIRELESS NETWORK (WLAN)</b>	<p>Built-in M.2-2230-E WLAN card with two internal antennas (external antennas available on request)  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</p>
<b>BACK PANEL CONNECTORS</b>	<p>Power Button and Easy Rock Switch  HDMI 1.4b (digital video+audio)  DVI-I (video, analog+digital)  4x USB 3.2 Gen 1 Type A (max. 5 Gbps)  2x Intel Gigabit LAN (RJ45, i211/i219LM)  3x Serial Port DB9/D-sub (1x RS232 and 2x RS232/422/485) (the RS232/422/485 ports supports 5V auxiliary voltage on the RI pin)  Microphone input (3.5 mm)  Audio Line-out / Headphones (3.5 mm)  DC-input connector for external power adapter (19V / 90W)  Potential Equalization Pin (POAG) according to DIN 42801 – the POAG cable is included</p>
<b>OTHER CONNECTION OPTIONS</b>	<p>The backpanel has three sections, which can be assigned with other connections.  This requires a modification of the metallic back panel shield.  Available ports: HDMI, DisplayPort, DVI-I, VGA, Quad USB 2.0, COM.</p>
<b>ENVIRONMENTAL SPECIFICATIONS</b>	<p>Operating temperature: 0 ~ 40 °C  Storage temperature: -20 ~ 60 °C  Permitted relative humidity: 20 ~ 80 % (non-condensing)</p>
<b>CONFORMITY AND CERTIFICATIONS</b>	<p>EMI: CE Class B, FCC Class B  Safety: CB, cTUVus  RF: RED (EU)  Medical certificates: cTUVus (ANSI/AAMI ES60601-1:2005/(R)2012), CB (IEC/ EN 60601-1: 2005+A1: 2012), CE (EN 60601-1-2:2015, Class B), IEC 60601-1-2: 2015, FCC Part 18 (CISPR 11, Class B)  This device is classed as a technical information equipment (ITE) in class B.  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)</p>

## SHUTTLE Panel PC M21WL01-i5 — TECHNICAL DRAWING

Overall dimensions: 543 x 334 x 49.9 mm (WHD)



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

## MODIFICATION ON REQUEST

Upon request on a project-related basis, the Shuttle Panel PC M21WL01-i5 can be ordered with external WLAN antennas or other connections (e.g. DisplayPort, additional USB ports or a second HDMI port).

Shuttle can also offer project customers a product version with other processors, e.g. Core i3 or Core i7.

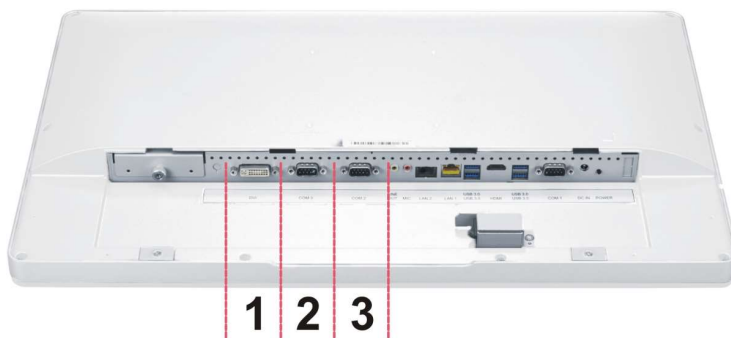








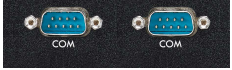
External WLAN antennas upon request

## Other connection options

The backpanel has three sections, which can be assigned with other connections. This requires a modification of the metal back panel shield.

### I/O Sections



PORT	IMAGE	OCCUPIED SECTIONS	MAXIMUM KITS
HDMI 1.4 HDMI 2.0		1	1
DVI-I		1 (Default)	1
DisplayPort 1.2		1	1
D-Sub/VGA		1	2
4x USB 2.0		1	1
Single COM (RS232 only)		1	1
Dual COM (RS232/RS422/RS485)		2 (Default)	1

Please contact us for further details and options.