



LAND



SEA



AIR

CLOUD15-PK6

MILITARY PANEL COMPUTER

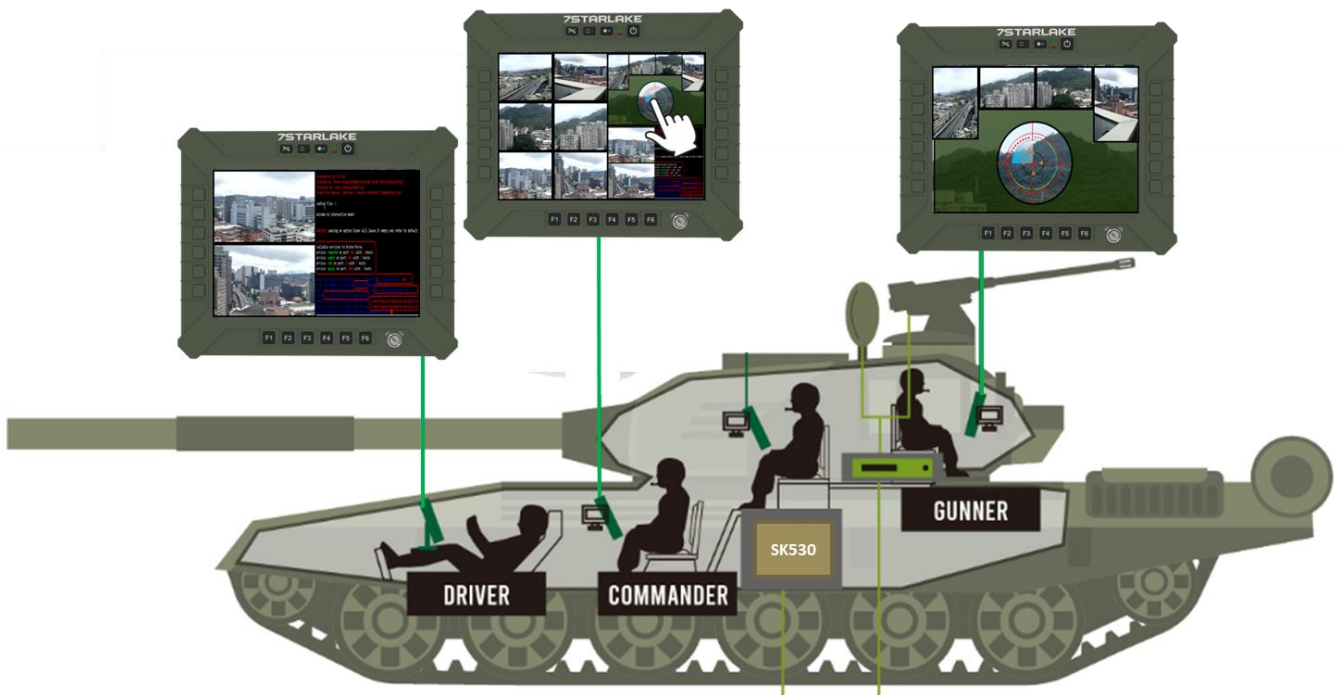


- Intel® Core i7-1185G7E
- Sunlight Readable 1000 nits
- NVIS Mode Support Dimmable <1% nits
- 5W Resistive Touch with EMI Mesh
- 15" Colorful LCD XGA Resolution
- Programmable Function Keys (Up to 20keys)
- Optical Bonding G.F.F with AR, AG
- IP65 Rating with DTL38999 connectors
- Extended Temperature -40°C~+60°C



Table of content

1. Introduction & Key Features
2. MIL-STD- 461/1275/810
3. Specification
4. Dimension & Drawings
5. Mounting Type
6. Ordering Information



1. Introduction & Key Features

7STARLAKE Cloud15-PX6 rugged mission-critical panel computer, retaining exceptional features of SKY series, with LCD super brightness up to 1000 nits and night vision (NVIS) under 1% nits, optical bonding of protective glass (GFG) touch screens, EMI filtering / EMI mesh shielding, and anti-reflection/anti-glare /anti-smudge(AR/AG/AS) coatings, possess also built-in CPU module w/ Intel Core i3-1115G4E is a 64-bit x86 high-end dual-core processor and 6 (up to 20) programmable function keys . The rugged panel computer is designed with IP65 waterproof and dust proof all-aluminum housings, supporting extended operating temperature range from -40 to 60°C and flexibly support extended DC power input range from 9V to 36V.

(1) Sunlight Readable Up to 1000 nits



CLOUD15-PX6 ruggedized smart display can support sunlight-readable to meet high ambient light conditions such as direct sunlight, it also adopt our excellent optic bonding technical process, when bonded together the light passes through the bonded layers and is absorbed somewhat into the screen. Optical bonding is therefore important in making screens sunlight readable.

(2) Night Vision Mode Support

When system at night mode, the operator can adjust brightness by hard key to turn it to darker, the display brightness down to under 1% nits or other customized night vision mode immediately, and the display gets ready at low brightness right away once its trigger and protect the usage of night vision devices at once.

Dual Vision Mode

Operating in outdoor or hazardous environments can pose many challenges, whether there are blistering hot or freezing cold temperatures, high exposure to dust and water, or potentially explosive atmospheres. In the battle field, For soldiers, it's very important to clearly visualize their targets under these kinds of situations, thus, intelligent rugged display is needed.



7STARLAKE Cloud15-PX6 ruggedized panel computer equipped dual LED backlight control systems, can support sunlight readable high bright and exceptional low nits readable with night vision goggles.

(3) MIL-DTL 38999



MIL-DTL-38999 is a high-performance cylindrical connector family designed to withstand the extreme shock, exposure and vibration that are commonplace in Defense and aerospace applications.

Amphenol®

Made with removable crimp or fixed hermetic solder contacts, these connectors provide high-vibration characteristics and are suitable for severe wind and moisture problem areas.

(4) G.F.G. Resistive Touch Screen

GFG touch screens are operable with fingers, pens and gloves. The glass surfaces makes the glass-film-glass sensor very durable and scratch resistant (7H).



(5) Soft Touch Buttons



CLOUD15-PX6 quipped up to 20 ruggedized function keys, and 1 power button by rubber-tooling made, each key pad dimension at 16 x

16 mm even the operator access function keys with wearing MOPP levels gloves.

(6) IP65 Certified



CLOUD15-PX6 has complete resistance to dust and water; which is ruggedized and reliable for constrained military, ground army and defense.

(7) MIL-STD 810 Compliance



CLOUD15-PX6 compliances of MIL-STD-810 for shocks, vibration etc.

CLOUD15-PX6 is rigorously field-tested to meet or exceed MIL-STD-810 a for extremely high & low temp., humidity, shock, and vibration.

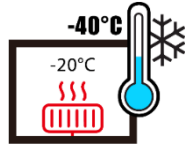
(8) MIL-461/1275 EMI Filter



CLOUD15-PX6 is designed with MIL-STD-1275/704, protecting against vehicle/aircrafts voltage surges, spikes and transients, and even electromagnetic interference. This characteristic is well suited for the strictest military requirement and deliver optimal

(9) Intelligent Heater

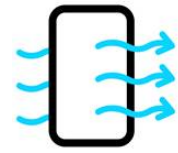
Due to consider boot up in extreme cold environment -40 degree, CLOUD15-PX6 is designed /w intelligent heater to control temperature automatically.



performance in harsh conditions.

(10) Waterproof Valve

CLOUD15-PX6 has completely waterproof to balance atmospheric pressure to meet different altitude environment.



(11) Optional Features - EMI Shielding Cable Kits

Electromagnetic Interference (EMI) is prevalent throughout the anywhere. The main purpose of effective EMC Shielding is to prevent electromagnetic interference (EMI) or radio frequency interference (RFI) from impacting sensitive electronics. This is achieved by using a metallic screen to absorb the electromagnetic interference that is being transmitted through the air. The shield effect is based on a principle used in a Faraday cage – the metallic screen completely surrounds either the sensitive electronics or the transmitting electronics. The screen absorbs the transmitted signals, and causes a current within the body of the screen. This current is absorbed by a ground connection, or a virtual ground plane. By absorbing these transmitted signals before they reach the sensitive circuitry, the protected signal is kept clean of electromagnetic interference, maximizing shielding effectiveness.

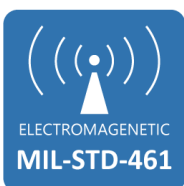


Figure : EMI Shielding Cable Kit

2. MIL-STD-461/1275/810

MIL-STD -461

MIL-STD-461



Ensures function properly within electromagnetic (EM) environments and avoid releasing EM energy cause EM interference (EMI) with nearby devices.

CE 102

10 kHz-30 MHz

Conducted Emissions, Radio Frequency Potentials & Power Leads, basic curve

RE 102

30 MHz - 5 GHz

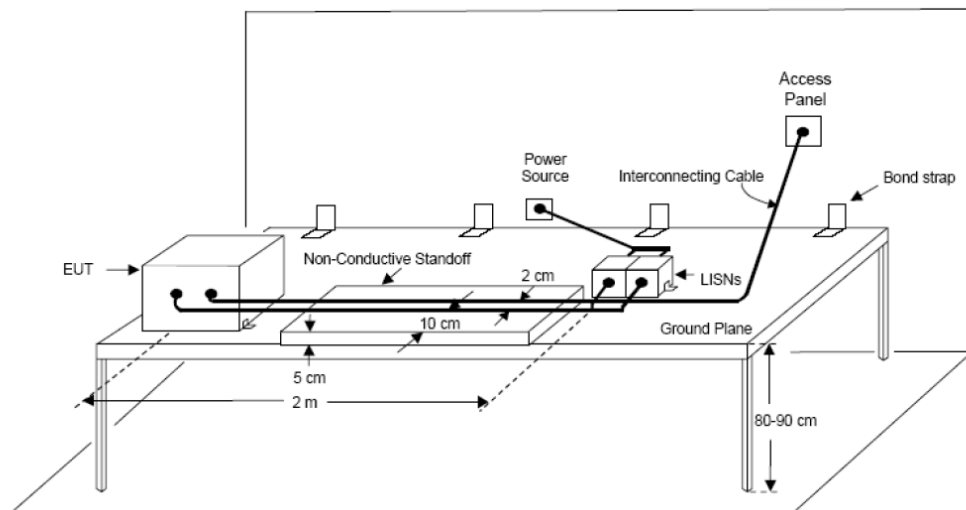
Radiated Emissions, Electric Field

RE 103

80 MHz - 3 GHz

Radiated susceptibility, Electric Field

MIL-STD-461 is a military standard that establishes the control of electromagnetic interference (EMI) emissions and susceptibility characteristics of electronic, electrical & electromechanical equipment and subsystems for military equipment. EMI encompasses any undesired signals, “noise”, generated by electronic equipment. Keeping EMI under control is crucial for military applications, because if it’s out of control, the military will be detected by the enemy and it might cause a great loss. To design a product that meets strict requirements, engineers should possess extensive knowledge of both electrical and mechanical design to avoid unintentional generation, propagation and reception of electromagnetic energy, which may cause unwanted effects, for example, physical damage in operational equipment.



MIL-STD -1275

MIL-STD-1275



when powered from a 28V supply, ensuring that electronics survive in the field when faced with input voltage spikes and surges.

Surge High
100V / 500ms

Surge Low
18V / 500ms

Steady State
18V~33V

One of the hardest challenges met during development is managing to design a rugged, protected, power-efficient design within limited available space. As a leading military computers’ producer, 7starlake designed products compliant with not only MIL-STD-810 and MIL-STD-461, but also MIL-STD 1275. MIL-STD 1275 is a military standard that defines a series of test conditions to be applied in various military vehicles, including electromagnetic compatibility (EMC), cranking/starting mode, and operating mode from battery and generator-only operation with their associated spikes, surges and operating limits. By adopting MIL-STD 1275 compliant products, users don’t need to worry about potential risk caused by power system.

3. Specifications

15" TFT LCD DISPLAY & RESISTOR TOUCH SCREEN

Resolution	1024x768 XGA	Brightness	1000 nits
Aspect Ratio	4:3	Contrast Ratio	4000 : 1
Touch Panel	Glass-Film-Glass 5-Wire resistor touch panel		

SYSTEM SPEC

CPU	Intel® Tiger Lake i3-1115G4E Processor (2C/4T, 2.2/3.9 GHz, 6M Cache , Max.28W)		
Memory type	1 x SO-DIMM, DDR4 3200 up to 32GB		
Storage	1 x SATA III; 1 x M.2 B Key SATA III		
NVIS switch Triple Mode	Day Mode: Ultra-Brightness 1000 nits Night Mode: NVIS (Dimmable under 1% Nits) Invisible Mode: Backlight off		
OSD	Backlight Dim+ Backlight Dim- Function key backlight On/Off (options)		
Function key	6 Soft programmable function Buttons 1 power button (On/Off)		
DC-IN	9V ~ 36 V, 12V DC-IN Optional:18V~36V MIL-STD-461, MIL-STD-1275,		

CONNECTORS

DC-IN	X4: 1x Power-IN (Amphenol TVS07RF-11-5P)		
IO Ports	X1: 2x 1GbE LAN (Amphenol TV07RW-13-35S);		
	X2: 2x USB2.0 + 1x RS485 (Amphenol TV07RW-13-35S);		
	X3: 1x Mini-DP (Amphenol MDPFTV7AGF312)		
	IP68 Water valve (VENT-MS1NMS-08001)		

APPLICATIONS

Applications	Marine, Naval, Ground and Airborne environment.		
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PHYSICAL

Dimension	435 x 370 x 65 mm (W x D x H)	Weight	4.5 Kg	Finish	Anodic aluminum oxide
Chassis	Aluminum Alloy, Corrosion Resistant	Ingress Protection	IP65 Dust /water Proof		

MIL COMPLIANCE

MIL-STD-810 (OPERATION TEST)

Low Temp.	Method 502.5 Procedure 2	Exposure(24h x 3 cycle) at -40°C min.
High Temp.	Method 501.5 Procedure 2	60°C for 2 hrs after temperature stabilization.
Humidity	Method 507.5 Procedure 2	RH -95%. Test cycles: ten 24-hrs , functional test after 5th and 10th cycles
Vibration	Method 514.6 Category 20	10-500Hz 1.04Grms Test duration: 1 hr x 3 axis (total 3 hrs)

Shock	Method 516.6 Procedure 1	20G, 11mSec, 3 per axis
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MIL-STD-810 (NON-OPERATING TESTS)

Low Temp.	Method 502.5	Exposure(24h x 7 cycle) at -40°C min.
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High Temp.	Method 501.5 Procedure 1	71°C for 2 hrs after temperature stabilization.
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bration	Method 514.6 Category 24	200 to 2000Hz Test duration: 1hr per axis; rms = 7.7 gs
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Shock	Method 516.6 Procedure 1	20G, 11mSec, 3 per axis
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MIL-STD-461 (OPTION)

CE102	2 MHz - 30 MHz
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RE102	1.5 MHz -30 MHz - 5 GHz
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RS103	1.5 MHz - 5 GHz
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ENVIRONMENTAL QUALIFICATIONS

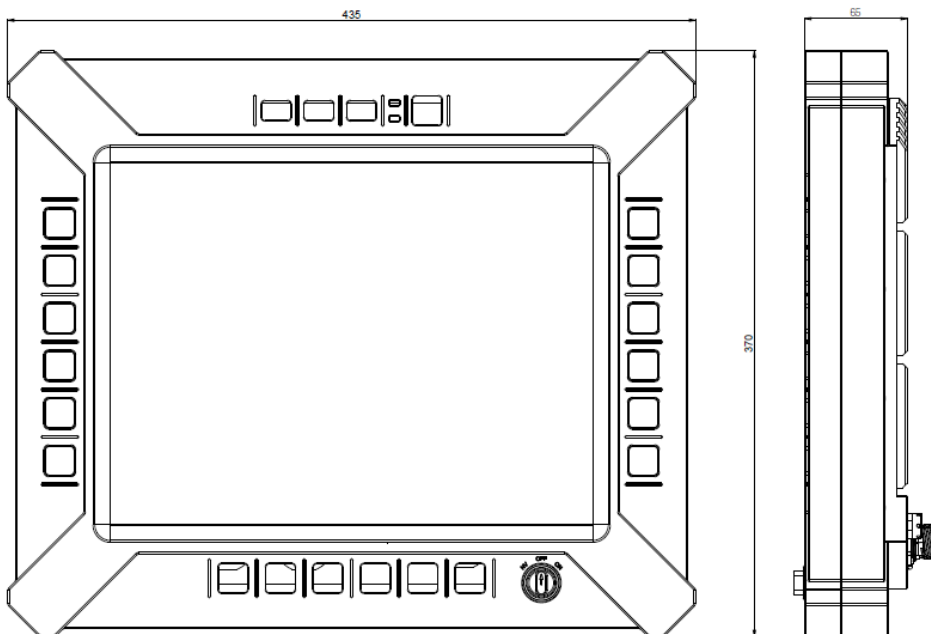
Regulatory	CE , FCC Compliance
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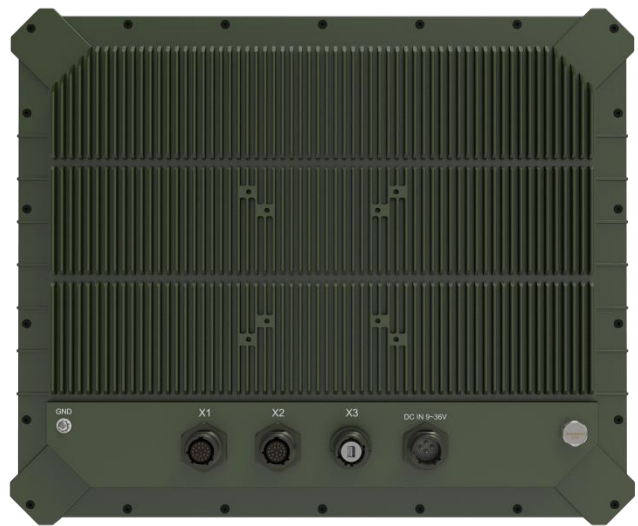
Operation Temp.	-40°C~60°C (ambient with air flow)
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Storage Temp.	-40~+85 °C
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Green Product	RoHS, WEEE compliance
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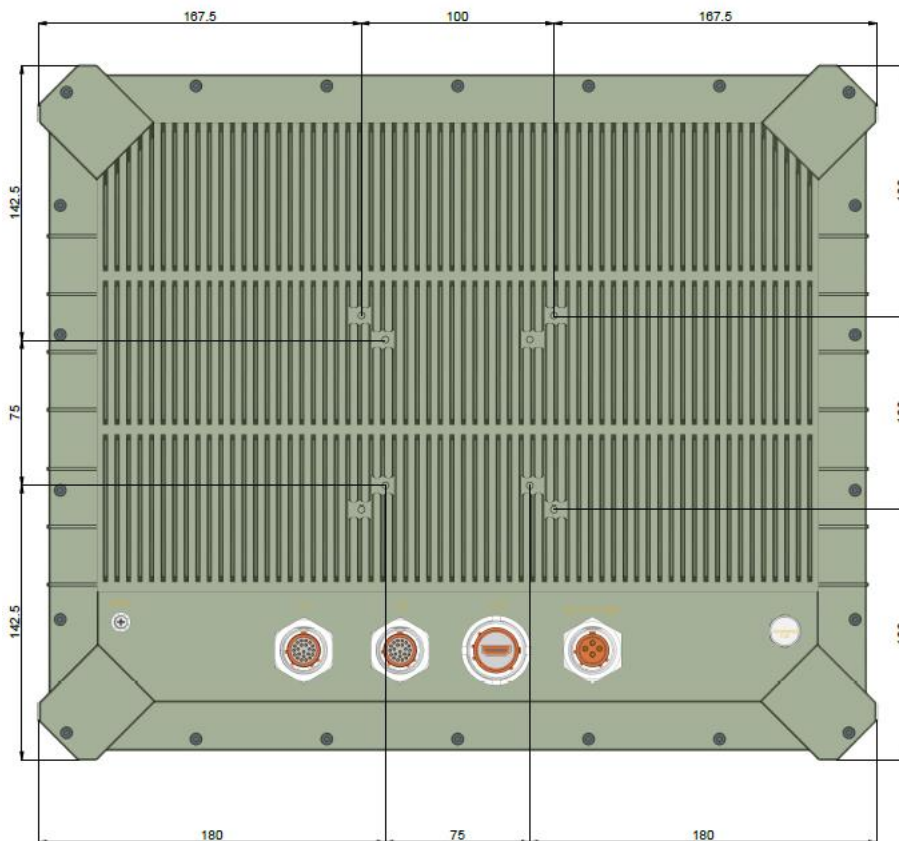
4. Dimension & Drawings





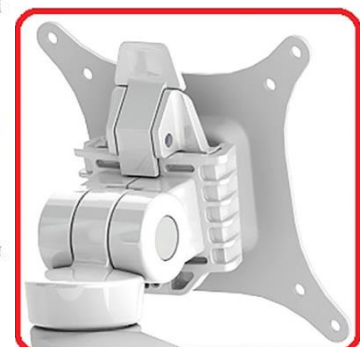
5. Mounting Type

VESA Mount

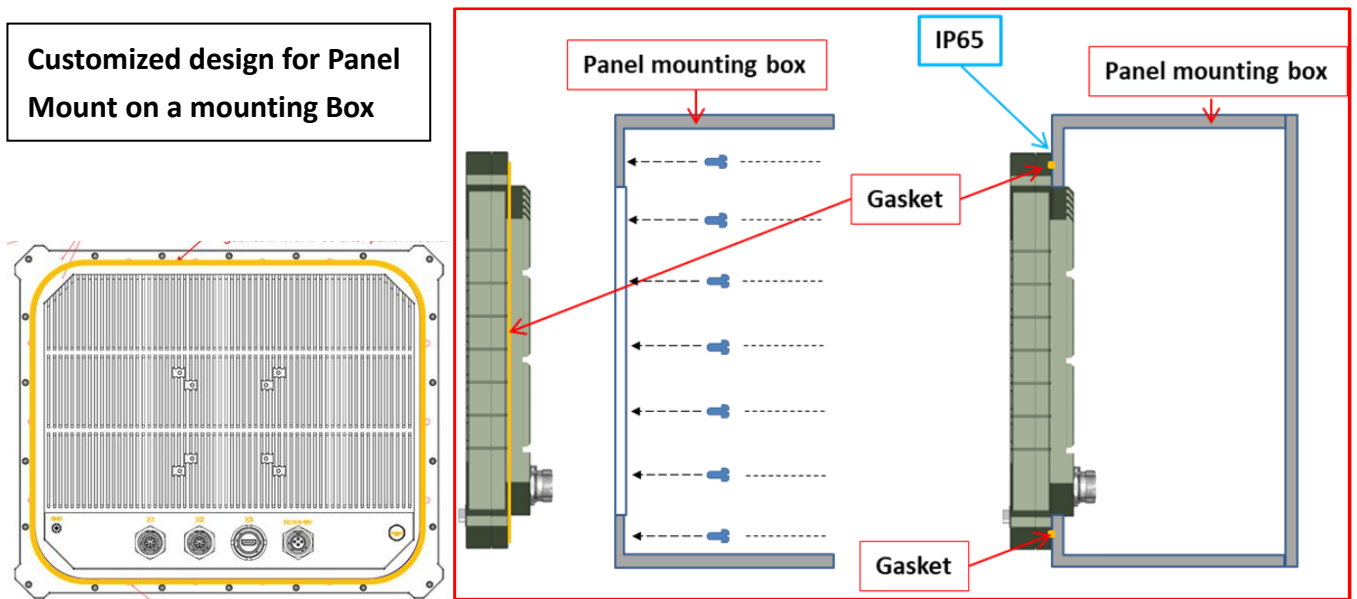


VESA 100/75 standard mounting hole pattern:

1. 75mm x 75mm or 100mm x 100mm
2. Screws are 4 or 6mm.
3. The four holes may be centered or located on the lower edge of the monitor.



Panel Mount (Option)



6. Ordering Information

15" Rugged Smart Display with MIL-DTL-38999 connectors, 20 user programmable function keys, NVIS supported

Cloud15-	PX6	P20	P20-F2A2	P20-A2
CPU	Core i7-1185G7E		Xeon W-11865MLE	Xeon W-11865MRE
Memory	Up to DDR4 32GB		Up to DDR4 64GB	
Storage	M.2 NVMe		SATA III SSD Up to 4TB	
GPU	N/A	N/A	Nvidia MXM A2000	
LAN1	1x 1GbE		1x 1GbE	
LAN2	1x 2.5GbE		1x 1GbE	
NIC				
Mini PCIe 1	No	YES	3G-SDI	Yes
Mini PCIe 2	No	Yes	3G-SDI	Yes
M.2	E key		M.Key	
Function Key	6	20	20	20
NVIS	Yes			
USB	2x USB2.0			
Display	1x DP		4x mDP + 1x VGA + 1x DVI	
COM	1x RS232 + 1x RS232/422/485		4x RS232/422/485	
CAN	Option			
DIO	No		DI/DO (4/4)	
Power	9V~36V DC (Options for 18V~36V MIL-461 EMI)			