

# SAILORPC-12A

## 12.1" Full IP 67 Panel PC

**Full IP 67**  
Up to 1 meter of submersion

### Features:

- 12.1" 1000 nits super high brightness TFT LCD available
- IP 67 (NEMA 6) fully-enclosed aluminum die cast enclosure and IP 67 waterproof lockable I/O
- Fanless system integrated with Intel® Atom™ N270 1.6G processor for ultra low voltage
- Supports one 2.0 GB (max.) 400/533 MHz DDR2 SO-DIMM
- Built-in internal Wi-Fi antenna supports 802.11 b/g/n high standard
- CAN-Bus interface for automotive applications
- Ambient light sensor detects ambient light for automated screen adjustments to optimize viewing.  
(Advanced Deep Dimming to Black for sunlight readable model)
- Standard VESA 75/100 compliance

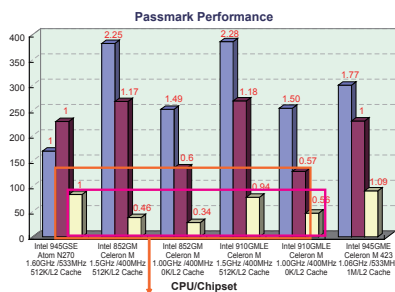


COMPUTEX TAIPEI 2009  
**BEST CHOICE**



## Rugged Panel PC with Fanless Intel® Atom™ Processor

The fanless intelligent display computer, SAILORPC-12A, uses a 45 nm Intel® Atom™ processor with up to 1.6 GHz frequency and can be used in harsh and safety-critical applications in transport, avionics, engineering or industrial automation. Better graphic performance is excellent for kiosk, self-service terminal, and digital signage applications.



Out Door Control System



National Park Guiding System



Zoo Guide

Evaluating 3D mark performance with different generation CPU and chipset combination, Intel® Atom™ processor is the best solution for low power consumption and better graphic performance choice.

## Sunlight Readable

### ■ Super High Brightness

SAILORPC-12ASR (Sunlight Readable Model) has greatly improved luminance through edge lighting to achieve super high brightness (up to 1000 cd/m²).

### ■ Low Reflection through AR (Anti-Reflection) Technology

Outdoor applications in daylight or other bright environments require technology that can suppress surface reflection. SAILORPC-12ASR sunlight readable model offers special AR (anti-reflection) surface treatment to prevent reflection, which ensures excellent visibility in daylight conditions.



**Super High Brightness: 1000 nits**  
**High Contrast: 700:1**  
**Wide Viewing Angle: 60/60 (R/L) 45/75 (U/D)**

## IP 67 Fully-Enclosed Design

The SAILORPC-A12 is front sealed and tested in the certified house chamber under UL's Witnessed Test Data Program (TDP). IEI follows IP 67 standard testing procedures. This full IP 67 touch monitor provides full IP 67 protection including connectors, cables and screen.

### [ IP 67 ] Dust-Tight

**First Digit** The first digit indicates the level of protection that the enclosure provides against access to hazardous parts

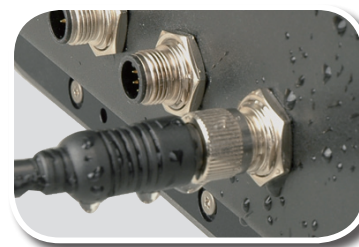
| Level |                                                                                   | Effective Against                                       |
|-------|-----------------------------------------------------------------------------------|---------------------------------------------------------|
| 6     |  | No ingress of dust; complete protection against contact |

### [ IP 67 ] Temporary immersion under water 1m

**Second Digit** Protection of the equipment inside the enclosure against harmful ingress of water

| Level |                                                                                   | Effective Against                                                                                                                                                         |
|-------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7     |  | Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1m of submersion) |

### Sealing enclosure with all sides of IP 67 !



## ■ IP6X Test

### • Test for protection against dust



## ■ IPX7 Test

### • Test for protection against water

Protected against the effects of temporary immersion between 15 cm and 1m. Duration of test is 30 minutes



### • Air Flow Test

Air pressure measurement is used as the IP 67 test method, the air flow tester is capable of detecting leaks in product and evaluates the pass/fail status of the watertight system.



## Uninterrupted Wireless Connection

The SAILORPC-12A series features high speed Wi-Fi IEEE 802.n protocol which builds on previous 802 standards by adding multiple-input multiple-output (MIMO) and 40 MHz operation to the physical (PHY) layer. MIMO uses multiple transmitter and receiver antennas to improve system performance.



### 27 times faster data transfer rate compared to 802.11b

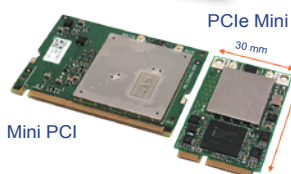
| Protocol | Freq. (GHz)          | Thru. (Mbit/s) | Data (Mbit/s)          | Range indoor (m) | Range outdoor (m) |
|----------|----------------------|----------------|------------------------|------------------|-------------------|
| 802.11   |                      |                |                        |                  |                   |
| a        | 5 GHz                | 23             | 54 Mbit/s              | ~35              | ~120              |
| b        | 2.4 GHz              | 4.3            | 11 Mbit/s              | ~38              | ~140              |
| g        | 2.4 GHz              | 19             | 54 Mbit/s              | ~38              | ~140              |
| n        | 5 GHz and/or 2.4 GHz | 74             | 300 Mbit/s (2 streams) | ~70              | ~250              |

802.11b/g/n ready with invisible antenna



### Benefit

- \* Half the size of Mini-PCI
- \* Higher bandwidth interface
- \* Rigid mechanical spec.

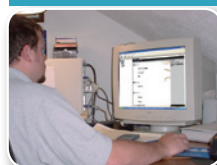


802.11b/g Wi-Fi, which gives you up to broadband-speed browsing and connectivity, compared to traditional wired LAN.

The benefits here:

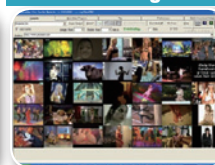
- Simple configuration
- Without hinders worker movement
- Without lessens man-hour productivity
- Without additional purchase of proprietary cables for specific devices
- Without the barrier to space

### 802.11a



Access to email, instant image and the Internet

### 802.11b/g



Streaming music  
Streaming video

### 802.11n



VoIP /Gaming /NAS



## Ambient Light Sensor

The SAILORPC-12A built-in ambient light sensor automatically detects the amount of light in the viewing environment and auto-adjusts the brightness of the screen.

### Benefits:

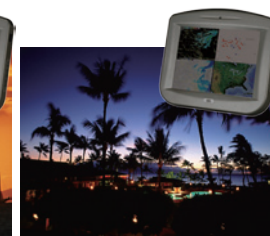
- Provides comfortable viewing and prevents eye strain
- Power saving
- Extended lamp life



**Day Mode:**  
Adjust to maximum 1000 nits  
Sunlight Readable automatically



Panel brightness auto-adjustment depends on the ambient light amount to save the system power



**Night Mode:**  
Adjust to acceptable brightness automatically in a insufficient light ambient

## CAN-Bus Automotive Applications

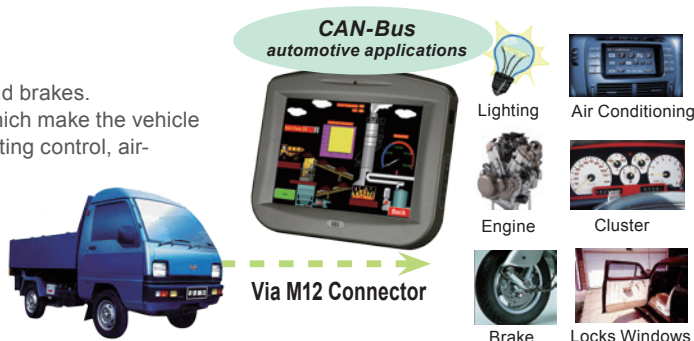
The SAILORPC-12A is equipped with automotive applied CAN-Bus interface. The Control Area Network (CAN) is a serial bus system, originally developed by Bosch for use in automobiles, and now is increasingly being used for control in industrial and automotive applications

### Controller Area Network

- 1Mb/s data rate
- High reliability bus
- CAN is an open standard with many variants
- Capable of providing real-time communication.

### ■ CAN in cars and truck engine

- Networking controllers for engine timing, transmission, chassis and brakes.
- Networking components of chassis electronics and electronics which make the vehicle more comfortable. Examples of such multiplex applications are lighting control, air-conditioning, central locking and seat and mirror adjustment.



### Other Application Fields:



## Reliable Die-Cast Aluminum Chassis

These ruggedized LCD products are designed for high reliability, shock and vibration tolerance, survival of high temperature, and corrosive environments. External materials like dust/water can be very destructive to any type of equipment over time.

### ■ Fanless and Completely Sealed Strong Housing

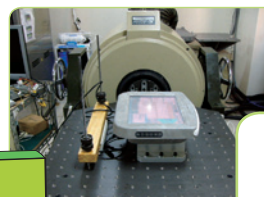
Sealed housing strictly prevents water invasion while the rugged die-cast aluminum enclosure eliminates the need for a fan as a heat dissipation device.



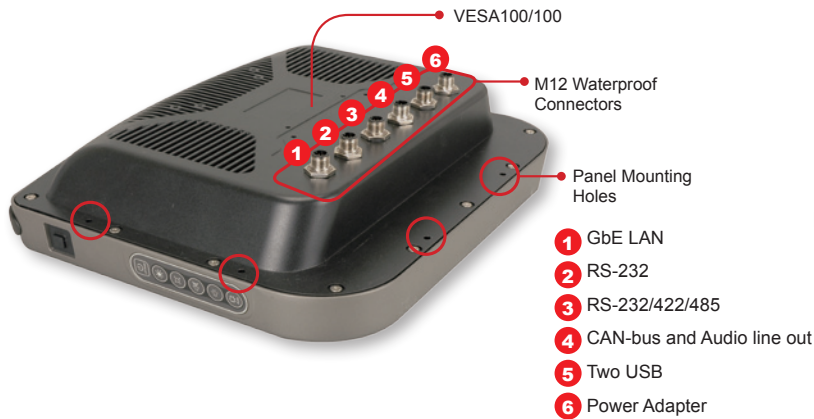
Operating Temperature: With on-board Intel® Atom™ Processor N270 1.6GHz  
-10°C~50°C

### ■ Rigorous Shock/Vibration Test

Compliant with MIL-STD-810F shock and vibration protection, as well as offering IP 67 water and dust proof front panel protection.



# Fully Integrated I/O



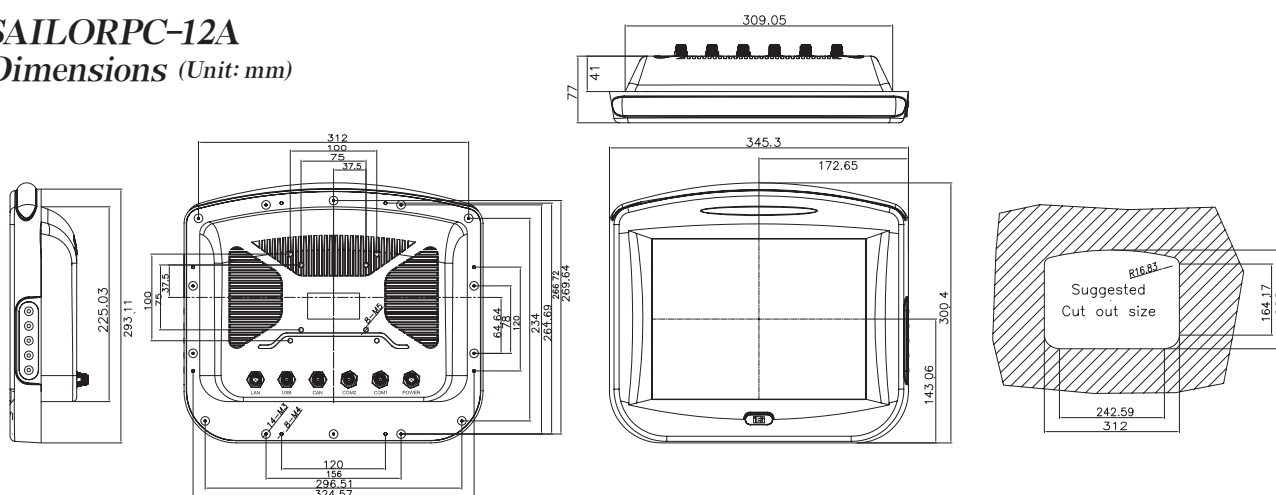
## Specifications



| Model                  |                                 | SAILORPC-12A-N270                                                                                                                        | SAILORPC-12ASR-N270   |
|------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Display                | LCD Size                        | 12.1"                                                                                                                                    |                       |
|                        | Max Resolution                  | 1024 x 768                                                                                                                               |                       |
|                        | Brightness (cd/m <sup>2</sup> ) | 500                                                                                                                                      | 1000                  |
|                        | Contrast Ratio                  | 700:1                                                                                                                                    | 700:1                 |
|                        | LCD Color                       | 16.2M                                                                                                                                    | 262K                  |
|                        | Pixel Pitch (mm)                | 0.3075(H) x 0.3075(V)                                                                                                                    | 0.240(H) x 0.240(V)   |
|                        | Viewing Angle (H-V)             | 160°/160°                                                                                                                                | 130°/120°             |
|                        | Backlight MTBF (hrs)            | 50000                                                                                                                                    | 60000                 |
| Motherboard            | SBC Model                       | SAILORMB-ATOM-R10                                                                                                                        |                       |
|                        | CPU                             | Intel® Atom™ N270 1.6GHz CPU                                                                                                             |                       |
|                        | Chipset                         | Intel® 945GSE + ICH7M                                                                                                                    | Intel® 945GSE + ICH7M |
|                        | RAM                             | Supports one 400/533MHz DDR2 SO-DIMM(2GB Max.)                                                                                           |                       |
| I/O Ports and Switches |                                 | 1 x 5-pin M12 connector for Power Adapter                                                                                                |                       |
|                        |                                 | 1 x 8-pin M12 connector for two USB                                                                                                      |                       |
|                        |                                 | 1 x 5-pin M12 connector for CAN-bus and Audio line out                                                                                   |                       |
|                        |                                 | 1 x 8-pin M12 connector for UART RS-232/422/485                                                                                          |                       |
|                        |                                 | 1 x 8-pin M12 connector for UART RS-232                                                                                                  |                       |
|                        |                                 | 1 x 8-pin M12 connector for GbE LAN                                                                                                      |                       |
| Driver Bay             | HDD Driver Bay                  | 1 x 2.5" SATA HDD Bay                                                                                                                    |                       |
|                        | SSD                             | CF Type II                                                                                                                               |                       |
| Expansion Slot         |                                 | 1 x Wireless LAN Module (802.11 b/g/n) (internal PCIe Mini card interface)                                                               |                       |
| Physical               | Construction Front Panel        | Aluminum                                                                                                                                 |                       |
|                        | Chassis Construction            | Heavy-duty steel                                                                                                                         |                       |
|                        | Mounting                        | Panel, Rack, Stand and Arm VESA 100mm x 100mm                                                                                            |                       |
|                        | Front Panel Color               | Silver (Pantone 8403C)                                                                                                                   |                       |
|                        | Dimensions (WxHxD) (mm)         | 345.3 x 300.4 x 77                                                                                                                       |                       |
|                        | Net/Gross Weight                | 4.2 Kg / 5.3 Kg                                                                                                                          |                       |
| Environment            | Operation Temperature (°C)      | -10°C ~50°C                                                                                                                              | -10°C ~50°C           |
|                        | Storage Temperature (°C)        | -20°C ~70°C                                                                                                                              | -20°C ~70°C           |
|                        | Vibration                       | 5~17Hz, 0.1" double amplitude displacement<br>17~640Hz, 1.5G acceleration peak to peak                                                   |                       |
|                        | Shock                           | 10G acceleration part to part (11ms)                                                                                                     |                       |
| Touch Screen           |                                 | Resistive Type 5-Wire with RS-232 interface                                                                                              |                       |
| Optional Power Supply  |                                 | P/N: 63000-CLG60121C-RS      - 60W Power Adapter<br>- Input: 90VAC~264VAC, 50/60Hz      - Output: 12VDC<br>- M12 waterproof connector 5P |                       |
| Power Requirement      |                                 | 9~28VDC                                                                                                                                  |                       |
| Front Panel Protection |                                 | IP 67 Compliant                                                                                                                          |                       |
| Power Consumption      |                                 | 33W                                                                                                                                      | 51W                   |
| Certificate            |                                 | Meets CE, FCC, CB, CCC, DNV                                                                                                              |                       |

## SAILORPC-12A

Dimensions (Unit: mm)



## Ordering Information

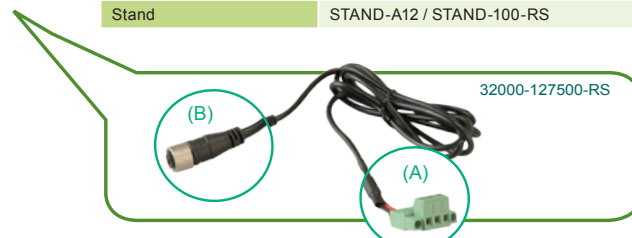
| Brightness | OS     | Part No.                    | Description                                                                                                                                                                                                                 |
|------------|--------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 500 nits   | CE 6.0 | SAILORPC-12A/R/1/1-C6-R30   | 12.1" 500 cd/m <sup>2</sup> IP 67 panel PC with Intel® Atom™ N270 CPU 1.6GHz, 802.11 b/g/n wireless module, touch screen, 1GB DDR2 553 MHz, M12 connectors and 1GB compact flash with Windows CE 6.0 operating system       |
|            | XPE    | SAILORPC-12A/R/1/4-X-R30    | 12.1" 500 cd/m <sup>2</sup> IP 67 panel PC with Intel® Atom™ N270 CPU 1.6GHz, 802.11 b/g/n wireless module, touch screen, 1GB DDR2 553 MHz, M12 connectors and 4GB compact flash with Windows XP Embedded operating system  |
|            |        | SAILORPC-12A/R/1/16-X-R30   | 12.1" 500 cd/m <sup>2</sup> IP 67 panel PC with Intel® Atom™ N270 CPU 1.6GHz, 802.11 b/g/n wireless module, touch screen, 1GB DDR2 553 MHz, M12 connectors and 160GB SATA HDD with Windows XP Embedded operating system     |
|            | LINUX  | SAILORPC-12A/R/1/4-L-R30    | 12.1" 500 cd/m <sup>2</sup> IP 67 panel PC with Intel® Atom™ N270 CPU 1.6GHz, 802.11 b/g/n wireless module, touch screen, 1GB DDR2 553 MHz, M12 connectors and 4GB compact flash with LINUX operating system                |
|            |        | SAILORPC-12A/R/1/16-L-R30   | 12.1" 500 cd/m <sup>2</sup> IP 67 panel PC with Intel® Atom™ N270 CPU 1.6GHz, 802.11 b/g/n wireless module, touch screen, 1GB DDR2 553 MHz, M12 connectors and 160GB SATA HDD with LINUX operating system                   |
| 1000 nits  | CE 6.0 | SAILORPC-12ASR/R/1/1-C6-R30 | 12.1" 1000 cd/m <sup>2</sup> IP 67 panel PC with Intel® Atom™ N270 CPU 1.6GHz, 802.11 b/g/n wireless module, touch screen, 1GB DDR2 553 MHz, M12 connectors and 1GB compact flash with Windows CE 6.0 operating system      |
|            | XPE    | SAILORPC-12ASR/R/1/4-X-R30  | 12.1" 1000 cd/m <sup>2</sup> IP 67 panel PC with Intel® Atom™ N270 CPU 1.6GHz, 802.11 b/g/n wireless module, touch screen, 1GB DDR2 553 MHz, M12 connectors and 4GB compact flash with Windows XP Embedded operating system |
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|            |        |                             |                                                                                                                                                                                                                             |

## Packing List

| Item                    | Part No.        | Description                                                                     |
|-------------------------|-----------------|---------------------------------------------------------------------------------|
| Panel mount screws pack | 44013-030041-RS |                                                                                 |
| Power cable             | 32000-127500-RS | 2000mm; 16AWG;<br>(A) terminal block connector;<br>(B) M12 Waterproof connector |
| Utilities CD            | 7B000-000087-RS |                                                                                 |
| Touch Pen               | XTR104-0002-RS  |                                                                                 |
| One Key Recovery CD     |                 |                                                                                 |

## Options

| Item              | Part No.                 |
|-------------------|--------------------------|
| Rack mounting kit | SAILORRK-12              |
| ARM               | ARM-11-RS / ARM-31-RS    |
| Stand             | STAND-A12 / STAND-100-RS |



## Optional cables and adapter

| Item                                  | Part No.           |
|---------------------------------------|--------------------|
| USB cable                             | CB-M12USB02-R10    |
| RJ-45 LAN cable                       | CB-M12RJ45-R10     |
| DB-9 COM port cable                   | CB-M12COM-R20      |
| DB-9 CAN bus and AUDIO line-out cable | CB-M12ACAN-R20     |
| AUDIO line-out cable                  | CB-M12AUDIO-R10    |
| Water-proof power adapter             | 63000-CLG6012IC-RS |



USB cable  
(CB-M12USB02-R10)



RJ45 LAN cable  
(CB-M12RJ45-R10)



DB-9 COM port cable  
(CB-M12COM-R10)



DB-9 CAN bus and  
AUDIO line-out cable  
(CB-M12ACAN-R10)



AUDIO line-out cable  
(CB-M12AUDIO-R10)



Water-proof Power Adapter  
(63000-CLG6012IC-RS)