

# MS2230

Mariner Kit for use with HP Compaq 8000 Elite Small Form Factor PC (Horizontal mount)



The HP Compaq 8000 Elite Small Form Factor (SFF) PC is marine type-approved by all of the major international marine Classification Societies when it is installed in conjunction with our Mariner Kit MS2230.

The MS2230 Mariner Kit affords protection against the effects of vibration and shock experienced in the offshore marine environment and has been type-tested against IACS Unified Requirement E10 and the relevant sections of IEC60945 (see below right for test details).

This type-approved combination of hardware and Mariner Kit can be used as the platform for your critical navigation, control, loading and general purpose applications (please check individual type-approval certificates for any restrictions).

**“Steer the right course  
with Mariner Systems”**



## WHAT IS SO SPECIAL ABOUT THE HP COMPAQ 8000 ELITE SFF PC?

- ◆ Provides all the benefits of a full-size enterprise PC in a sleek, space-saving design without sacrificing speed, power, or serviceability
- ◆ Only two-thirds the size of a conventional desktop PC
- ◆ The 8000 Elite has been engineered for the specific needs of business computing
- ◆ Lengthy lifecycle (approx 15 months) and stable hardware and software images
- ◆ All 8000 Elite models have improved energy efficiency over previous generations by 30% when the PCs are at an idle state
- ◆ The 8000 Elite meets or exceeds many voluntary and mandatory global environmental regulations and standards – EPEAT Gold registered and ENERGY STAR® qualified
- ◆ Tool-less serviceability features for easier upgrades and repairs
- ◆ Built around the Intel® Q45 Express chipset and the latest Intel® Core™ 2 Quad and Intel® Core™ 2 Duo and Intel® Pentium® dual-core processors to provide the performance you expect from a commercial class PC
- ◆ Integrated Intel® Graphics Media Accelerator 4500 delivers exceptional graphics performance for all essential and multimedia requirements
- ◆ One low-profile PCI slot; One low-profile PCI Express x16 slot; Two low-profile PCI Express x1 slots
- ◆ Four front and six rear USB 2.0 ports; One DisplayPort
- ◆ Three-year limited warranty on parts and labour as standard

This Mariner system is type-tested against the consolidated, 'worst-case' requirements of all the major international marine Classification Societies:

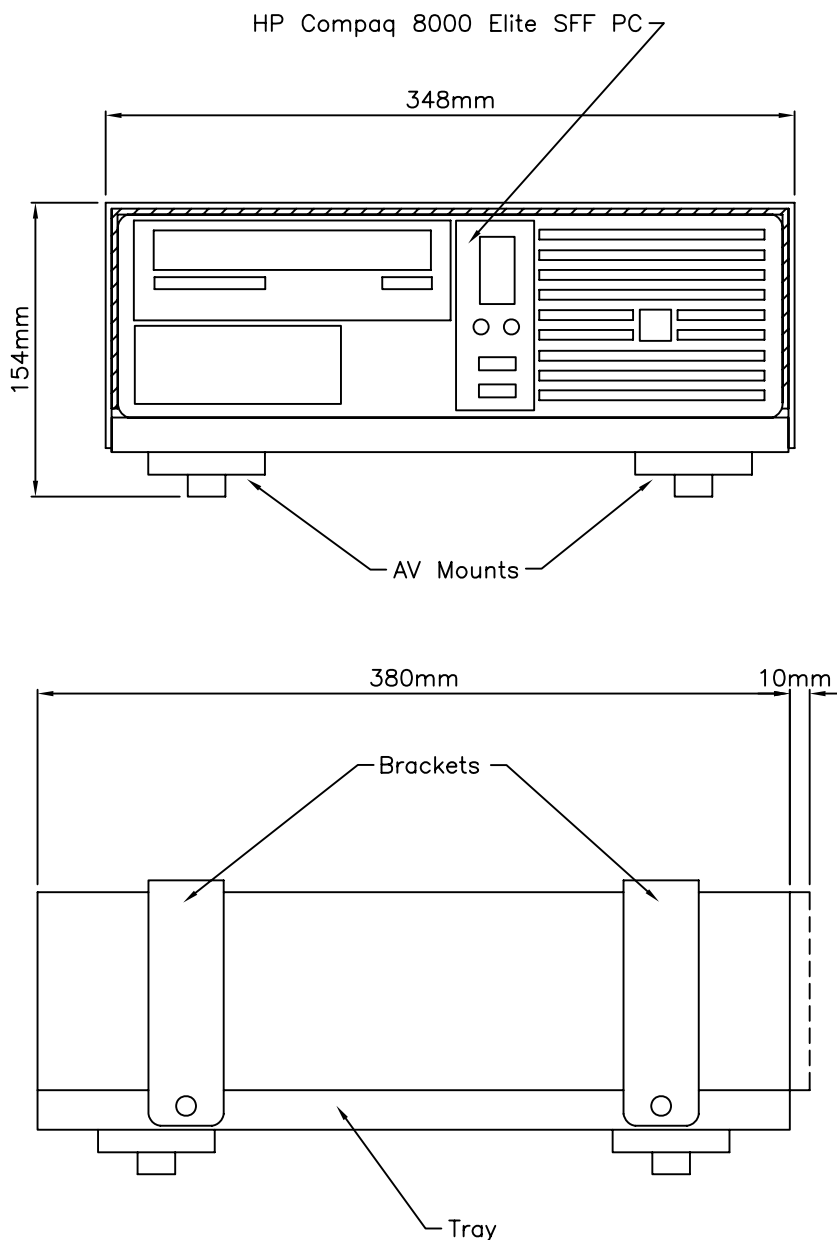
### ABS, BV, CCS, DNV, GL, KR, LR, NKK, PRS, RINA

Type-tests included on the test programme are as follows:

- > Vibration, Shock, Static and Dynamic Inclination
- > Dry & Damp Heat, Low Temperature
- > Acoustic Noise, Compass Safe Distance
- > High Voltage, Power Supply Variation & Power Supply Failure
- > Conducted LF & RF, Electromagnetic Field
- > Radiated & Conducted Emissions, Electrostatic Discharge
- > Insulation Resistance, Burst / Fast Transients
- > Surge Immunity, Access to Dangerous Voltages

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## OPERATING GUIDELINES

Although all our equipment is tested against extreme environmental conditions for the purposes of marine type-approval, installation should take into account the following guidelines:

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold and, wherever possible, ensure that the unit is within the manufacturer's specified operating/non-operating ranges:

	Operating	Non-Operating
Temperature	+10° to +35°C (+50° to +95°F)	-30° to +60°C (-22° to +140°F)
Humidity	10% to 90% (non-condensing)	5% to 95% (non-condensing)

- Leave a 10.2 cm (4-inch) clearance on all vented sides of the computer to permit the required airflow
- Never restrict airflow into the computer by blocking any vents or air intakes
- Occasionally clean the air vents on the front, back and any other vented side of the computer as lint, dust and other foreign matter can block the vents and limit the airflow
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply

By following these guidelines you will maximise the life of your equipment and minimise service costs.

## STATISTICS

Overall Fitted Dimensions	348mm (w) x 154mm (h) x 390mm (d)
Weight (Mariner Kit only)	Approx 2.2 kg
Weight (including hardware)	Approx 10 kg
Chipset	Intel® Q45 Express
Processor	Intel® Core™ 2 Quad Q8400 / Q9505 / Q9550 / Q9650 (2.66 to 3.0 GHz, 4 to 12 MB L2 cache, 1333 MHz FSB); Intel® Core™ 2 Duo E7500 / E7600 / E8400 / E8500 / E8600 (2.93 to 3.33 GHz, 3 to 6 MB L2 cache, 1066 to 1333 MHz FSB); Intel® Pentium® E5300 / E5400 / E6300 / E6500 (2.60 to 2.93 GHz, 2 MB L2 cache, 800 to 1066 MHz FSB)
Memory	1 to 8 GB DDR3 SDRAM PC3-10600 (1,333 MHz) Non ECC
Hard Drive	160 GB to 1 TB Serial ATA 3.0 GB/s (7200 rpm)
Keyboard	HP Standard (PS/2 or USB); HP Washable (USB/PS/2)
Mouse	HP 2-Button Optical Scroll (PS/2 or USB); HP Laser (USB)
Network Card	Integrated Intel® 82567LM Gigabit Ethernet
Graphics	Intel® Media Accelerator 4500 Graphics (integrated with Intel® Q45 Express chipset)
Optical Storage	HP SATA DVD-ROM; HP SATA SuperMulti LightScribe DVD Writer
Audio	Integrated HD audio with Realtek ALC261 codec
Operating System	Genuine Windows® 7 Professional 32 or 64-bit; Genuine Windows® 7 Home Premium 32 or 64-bit; Genuine Windows® 7 Home Basic 32-bit; Genuine Windows® Vista Business 32-bit; Genuine Windows® Vista Home Basic 32-bit; Genuine Windows® 7 Professional with downgrade to Windows® XP Professional; FreeDOS
Slots	1 low-profile PCI; 1 low-profile PCI Express x16; 2 low-profile PCI Express x1
USB support	10 x USB 2.0 ports - 4 front and 6 rear
Interfaces	1 x Serial port (2nd optional); 1 x Parallel port (optional)



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Design and specifications are subject to change without notice. E&OE.

Version I