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ES Series of VME Enclosures

RADSTONE SYSTEM INTEGRATION



- 19" rack mount industrial chassis for air-cooled VME boards
- Supports Radstone Ruggedization Level 1 cards (0 to +55°c)
- Upgrade pack available to support Ruggedization Level 2 cards typically used in naval applications
- Designed to meet 89/336/EEC EMC directive with roadmap to alternative standards
- Up to 20 VME64 extensions card slots
- Cardframe placement supports front and rear I/O
- Flexible rear I/O schemes with P2 access and space for backplane mounted transition modules
- Multi-backplane and multi-PSU configurations
- Front access and internal peripheral bays
- Universal input AC PSUs
- DC input PSU options
- Integral dc cooling fans
- Illuminated front panel on/off switch, protected reset switch and DC voltage rail indicators

Product Overview

A modular design philosophy enables the ES series of VME enclosures to fulfil the requirements of application areas ranging from the environmentally benign right through to deployed industrial and naval installations.

Central to this concept is a range of measures introduced to ensure EMC and mechanical integrity while at the same time providing inherent flexibility. For example, all structural metal panels utilize folded metal joints in order to provide a labyrinthine EMC seal. This simple technique has further advantages: it not only improves aesthetics by means of a reduced fastener count but also provides strength and rigidity without an undue weight penalty. Board level cooling is another important consideration and a specially developed 'Off-Set-Square' ventilation pattern is used in order to provide a cost effective balance between EMI attenuation and airflow. Further EMC measures include the provision of a front door to augment EMC performance of VME font panels within card frame, the use of CE, UL or IEC approved power supplies, a high performance AC power inlet filter and geographical separation of AC - DC - I/O signal cabling.

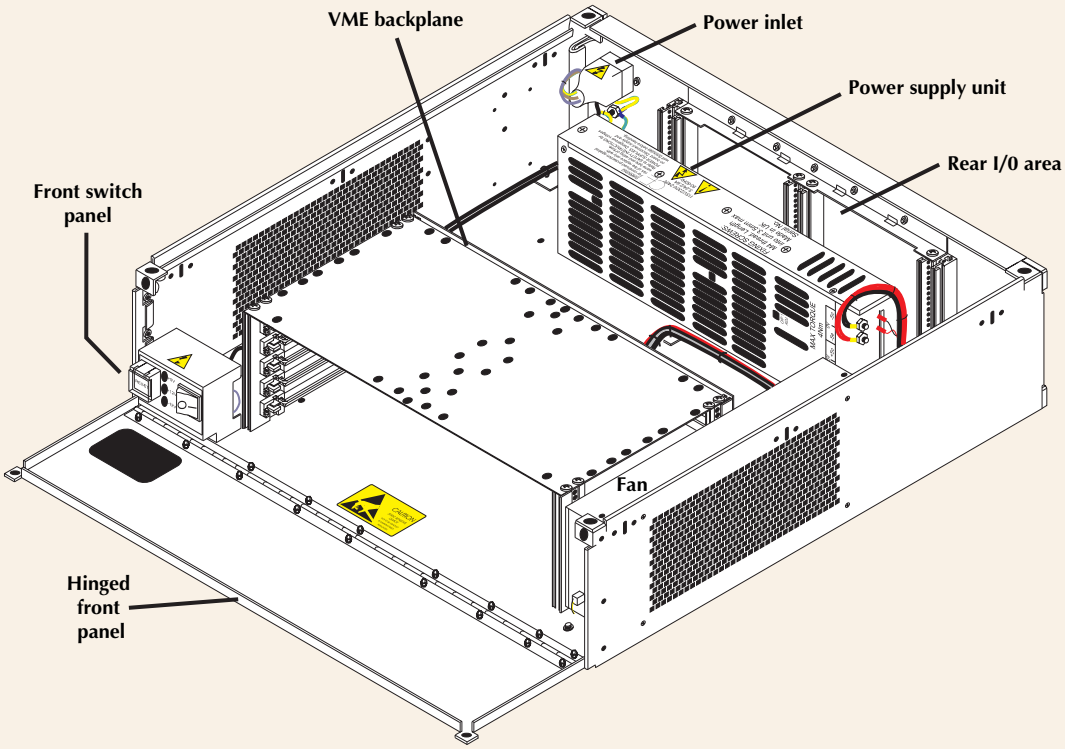
The ES series is backed up by the full range of Radstone integration and qualification services. At the lowest level this includes basic board and BIT configuration while at the highest level this could include the documentation and design proving demanded by a full naval program.

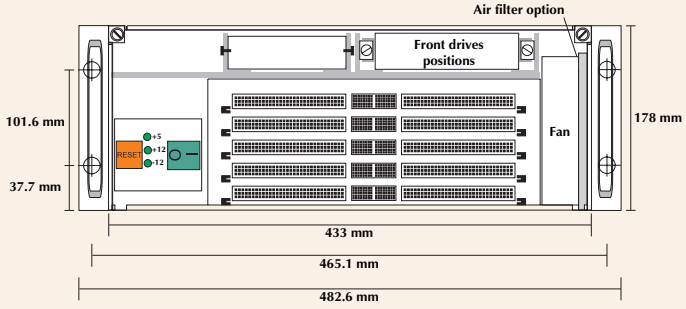
RADSTONE TECHNOLOGY

Why settle for less

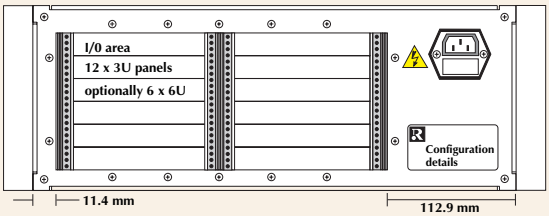
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Radstone ES 5 Chassis





ES5 Front View



ES5 Rear View

Figure 1: ES5 Specification Diagram

Table1: ES-5 Detailed Specification

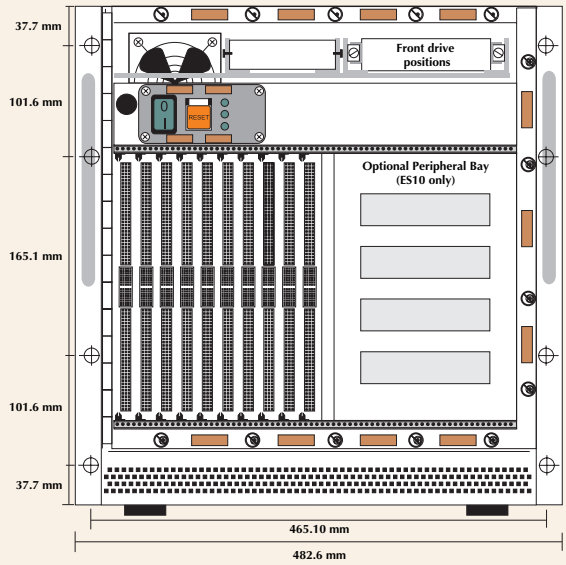
System backplane	5 VME64 extensions card slots loaded with 5 row connectors
Dimensions	Height: 4U (178mm) Width: 433 mm (without mounting ears) Depth: 521 mm
Unpopulated weight	Approximately 8.5 Kg
Input Power	94 – 240V AC (47-63Hz), 250Watts
Power factor correction	>0.95 at 230V AC
PSU efficiency	Typically 70%
Internal power	+5v@35A, +12V @8A, -12V@8A
I/O	12 3U x 4HP rear I/O panel positions
Card cage	Recessed 60mm behind front door which hinges downwards

Options

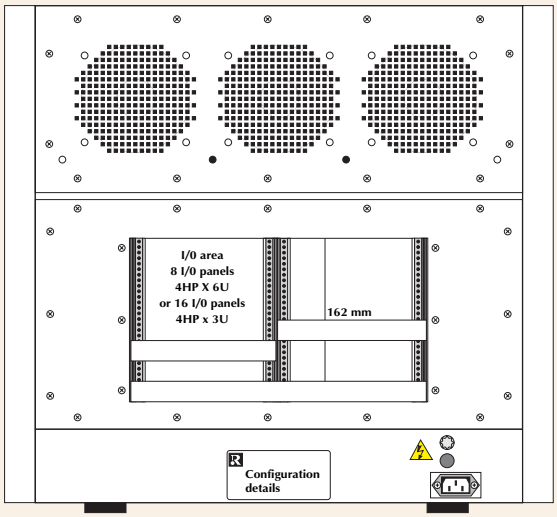
- P0 connectors allocated on a per slot basis as TYPE A (80 way keyed) or TYPE B (95 way)
- Alternative backplane configurations including 3 and 7 slots (no peripheral space above 7 slot backplane)
- Installation of required peripheral set
- Internal shock mounting of peripherals commensurate with Radstone's Ruggedization Level 2 standard
- DC primary power input
- PSU upgrades to include more stringent EMC measures or additional internal voltage rails
  - ES5-300V-3V3 provides a 400 watt, AC input supply with outputs: +5V@60A, +3.3V@35A, +12V@10A, -12V@4A
- Wide temperature range operation

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Radstone ES 10 and ES 20 Chassis



ES10 Front View



ES10 Rear View

Figure 2: ES10 Specification Diagram

Table 2: ES-10 Detailed Specification

System backplane ES-10 ES-20	 10 VME64 extensions card slots loaded with 5 row connectors 20 VME64 extensions card slots loaded with 5 row connectors
Dimensions	Height: 10U (445mm) Width: 433 mm (without mounting ears) Depth: 521 mm
Unpopulated weight	Approximately 16 Kg
Input Power	90 – 255V AC (47-63Hz), 600Watts
Power factor correction	>0.95 at 230V AC
PSU efficiency	Typically 75%
Internal power	+5v@100A, +12V @8A, -12V@8A
I/O	16 3U x 4HP rear I/O panel positions
Card cage	Recessed 100mm behind front door which hinges to the left

Table 3: Generic ES Series Specification

Operating temperature	0 to +65°C
Storage temperature	-40 to +85°C
Relative humidity	5 to 95% non-condensing
Vibration	0.002g /Hz from 10 to 2000Hz random and 2g sinusoidal from 5 to 500Hz
Shock	15g peak half sine 11mS duration
EMC Conducted/radiated emissions Conducted/radiated susceptibility Harmonic standard	 EN55022 Class A EN50082 (IEC801 parts 2, 3, 4 Level 2) EN61000-3-2
Safety	EN60950
Internal finish	Conductive neutral alochrome 1200
External finish	RAL 7035 (other colors and finishes available upon request)

Options

- P0 connectors allocated on a per slot basis as TYPE A (80 way keyed) or TYPE B (95 way)
- Alternative backplane configurations including 3, 7, 12 and 15 slots
- Multiple backplane and/or multiple PSU configurations
- Installation of required peripheral set
- Internal shock mounting of peripherals commensurate with Radstone Ruggedization Level 2 standard
- DC primary power input
- PSU updgrades to include more stringent EMC measures or additional internal voltage rails
- Wide temperature range operation

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ES Series Standard Ordering Information

ES5-300V	19"chassis, 4U high. 5 slot VME64 extensions backplane, 250W autoranging PSU +5v@35A, +12v@8A, -12v@8A, ac/dc power cabling, cooling fans, peripheral mounting options, EMC front door, designed to meet European EMC directive
ES10-300V	19" chassis, 10U high. 10 slot VME64 extensions backplane, 600W autoranging PSU +5v@100A, +12v@8A, -12v@8A, ac/dc power cabling, cooling fans, hinged EMC front door, designed to meet European EMC directive
ES20-300V	19" chassis, 10U high. 20 slot VME64 extensions backplane, 600W autoranging PSU +5v@100A, +12v@8A, -12v@8A, ac/dc power cabling, cooling fans, hinged EMC front door, designed to meet European EMC directive
P0xy	P0 connector definition (per slot) x=A (for Type A connector, KEYED) or x=B (for Type B connector, NOT KEYED) and y=slot number. e.g. P0A1 defines a type A P0/J0 to be fitted in VMEbus backplane slot 1
SYSCONFIG	Configuration and installation of VME card set, BIT, peripherals, I/O wiring and connector set
ES_ATP	Performance of a suitable Acceptance Test Package in order to validate functionality prior to delivery of a configured system
FUG-ES5	Fan upgrade to support high power dissipation VME boards
FUG-ES10	Fan upgrade to support high power dissipation VME boards
FUG-ES20	Fan upgrade to support high power dissipation VME boards Note: Fan upgrades can be configuration dependent and are typically required if one or more indivudual card slots must dissipate in excess of 30 watts. To be used in conjunction with the BAFFLE boards in unused slots
BAFFLE	VME board size baffle module. To be installed in each vacant card slot in order to maximize airflow across used slots

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