

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

ATR Chassis

Radstone ATR chassis enable complete, industry standard ARINC format computer systems to be built with conduction cooled VMEbus modules. They provide the highest level of environmental protection combined with exceptional packing density and thermal performance.

In each of the Radstone ATR chassis the boards are cooled entirely by conduction to the chassis walls. No cooling air passes directly over the boards so completely protecting them from airborne contaminants. The heat is extracted from the chassis either by air blown through hollow sidewall heat exchangers or by conduction to a cold plate.

Radstone's level 4 (rugged conduction cooled) and level 5 (tactical) build standards are designed specifically for cooling by conduction. These board styles and each of the chassis in the range comply with the requirements of IEEE 1101.2-1992. The chassis will mechanically accept not only Radstone boards but also boards from any vendor meeting this international standard.

All VMEbus modules and power supply units are secured in the chassis with expanding screw driven wedgelocks that ensure the mechanical integrity of the whole unit and minimize the risk of damage from shock and vibration. This design approach maximizes the heat the chassis can dissipate by providing thermal paths of the lowest possible impedance from the modules to the outside world.

The three sizes of ATR chassis, in both fan assisted and baseplate cooled versions accommodate up to 15, 8 and 5 boards respectively in form factors of 1 ATR Long, 1 ATR Short and $^1/_2$ ATR Short.

RADSTONE
TECHNOLOGY



Radstone ATR chassis form an integral part of a complete chassis and board level product strategy. Five clearly defined build standards for board level products allow a consistent hardware environment from development to the harshest field environments. These can be accommodated in the following chassis types:

ATR chassis provide the optimum solution for conduction cooled VME boards, Radstone level 4 (Rugged conduction cooled) and level 5 (Tactical conduction cooled).

The Rugged Chassis range (RS-15 and RS-10) matches the ATR operating temperature range and provides an air cooled equivalent for level 3 (Rugged air cooled), level 2 (Extended temperature) or level 1 (Standard) boards.

The ES series provide a low cost solution for development and benign environments, supporting commercial grade, level 1 (Standard) VME boards.

Key Features

- 3 Sizes: 1ATR Long, 1ATR Short, $^1/_2$ ATR Short
- Single piece aluminium construction for maximum integrity
- Hermetic seal option on all units
- Detachable front panel for ease of maintenance
- Choice of Fan Assisted or Baseplate cooling
- Accommodate 15, 8 and 5 Conduction cooled boards
- IEEE 1101.2-1992 compliant
- 28 Vdc or 115 Vac primary power options
- Standard backplanes offer full VME64X, 5 row DIN connectors
- Custom I/O and internal configuration by wire wrapping or backplane customisation

Construction

All Radstone ATR chassis benefit from a single piece aluminium construction providing unparalleled protection for fragile internal electronics against shock and other environmental hazards. The chassis meet the ARINC 404 profile with hold downs to ARINC 600, positioned to ARINC 404 in order to maximise front panel connector area. Outline drawings are available upon request. Figure 1 illustrates the major constituent parts of a 1ATR Long chassis with fan.

Fan assisted cooling

The heat generated in the VMEbus modules and power supplies is transferred by conduction to hollow sidewall heat exchangers. The chassis are normally supplied with integral cooling fans to provide the necessary air flow; alternatively cooling air may be supplied from a separate source and in this case, the integral fans can be omitted. These chassis are mounted within equipment racks in trays and secured by means of ARINC 404A hold-downs at the rear and ARINC 600 compatible hooks at the front.

Baseplate cooling

These ATR Chassis have a baseplate which forms the rigid structure for mechanically attaching the unit into the equipment rack and at the same time serves as the path for removing heat by conduction to the user's cold plate. In order to enhance the mechanical and thermal characteristics of the chassis there are a number of vertical heat conducting members between the exterior of the cast sidewalls and the baseplate. These features enable greatly increased power dissipation without the use of fans, making them ideal for all high power severe environment applications, or where mechanical noise from fans is unacceptable.

Raised lid option

The 1 ATR Long and 1ATR Short chassis may be supplied with a raised lid, increasing the height of the unit by either 60 or 75 mm.

This additional space above the VMEbus boards may be used to route signal wiring from the front panels of the VMEbus boards as highlighted in Figure 3 below. This is particularly useful for video or high speed signals where it is vital to minimise the number of intermediate connections.

Alternatively the space may be used to mount disk drives (rotating or solid state). The 1ATR Long can support two drives, one embedded fixed drive and one front mounted fixed OR removable media drive. The 1ATR Short can support a single drive which may be either a fixed OR a front mounted removable media drive.

Front panel and I/O wiring

The ATR chassis all carry a common set of controls and indicators as well as external power, monitor and I/O connectors on the front panel. The area available for user defined connectors depends upon chassis style and ranges up to the 250 cm2 illustrated on the 1ATRLong Baseplate cooled chassis illustrated in Figure 2 below. The indicators show power rail status and the result of BIT tests. An elapsed time indicator and reset switch are always provided, and in addition a variety of custom requirements can be accommodated.

Radstone can install and wire I/O connectors to custom instructions or the configuration can be completed after delivery. For larger production runs and for increased maintainability it often becomes cost effective to provide a customised backplane which incorporates I/O wiring. Application specific cabling is routed inside the chassis from front panel connectors through intermediate Cannon D type connectors located at the front of the backplane. Connection is made across the backplane to the P2 user I/O pins of the appropriate VMEbus slots. I/O wiring options are illustrated in Figure 3

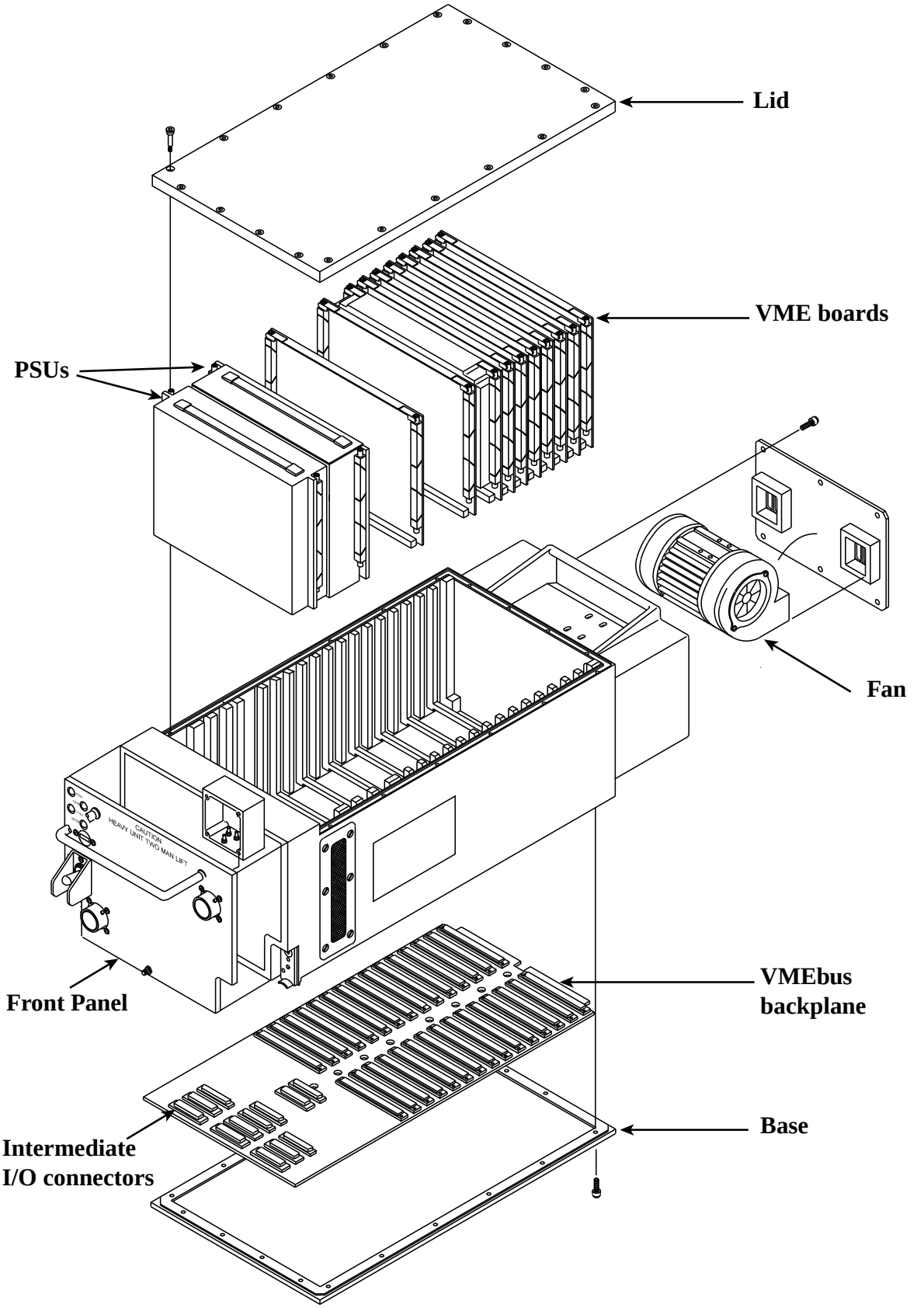


Figure 1 An exploded assembley drawing of the 1ATRLong chassis

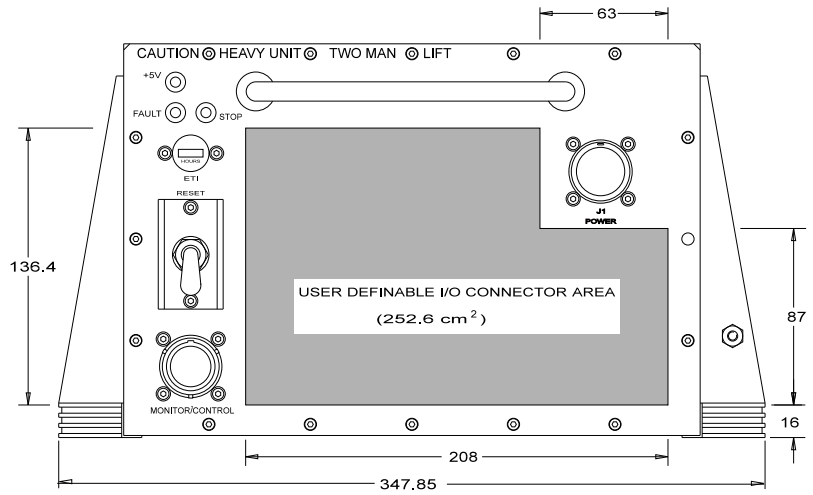


Figure 2. 1ATRLong BBI front panel

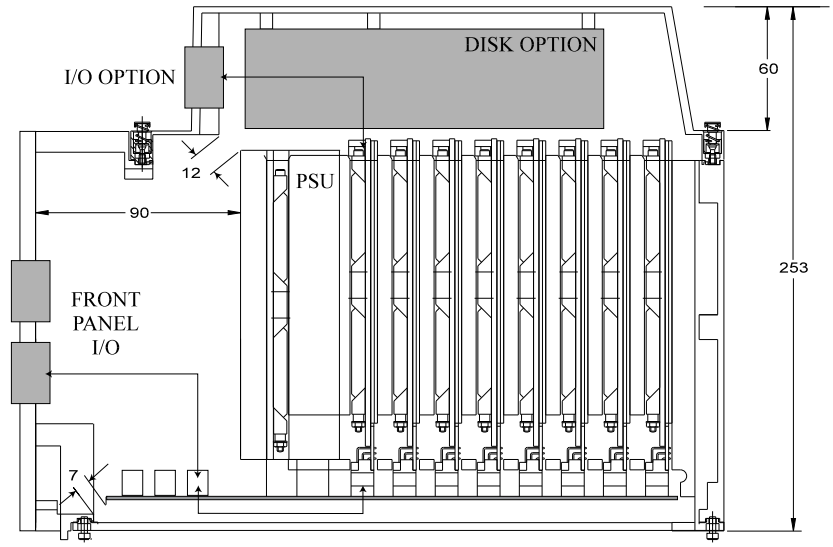


Figure 3. 1ATRShort internal structure and 60mm raised lid

Power supplies

All the chassis contain their own power supply units which accept primary power from the user's system via the front panel power connector and input filters. Two options are offered, a cost effective industrial unit populated with plastic components where possible is part of the standard build or optionally and for more demanding applications a full specification unit loaded with ceramic components throughout. Both units conform to the same environmental and performance specifications.

Power supply options are available for 28 Vdc or 115 Vac / 270 Vdc. All power supply units incorporate controls for remote sensing and shutdown and can detect inputs out of specification as well as overcurrent and overvoltage outputs. The 1ATR Long may support either one or two power supply units. The 1ATR Short and 1/2ATR Short accommodate a single power supply unit. Regulated dc output hold up times of up to 200ms are possible with the Capacitive Hold Up Module (HK-1), a factory fitted option.

Power dissipation capability

For fan assisted units then the heat dissipation at a given altitude is proportional to the temperature and volumetric flow rate of the cooling air, the figures below represent a worst case situation (50 000ft) and utilise standard fan units with incoming air at 55˚C.

	baseplate cooled	fan cooled
1ATR Long	450 watts	220 watts
1ATR Short	300 watts	150 watts
$^1/_2$ATR Short	150 watts	75 watts

28 Vdc Input
MIL-STD-704D, 22-30 Vdc steady state, 50 Vdc transient. MIL-STD-1275A.

	Power Supply Capacity				
	+5 v	+12 v	-12 v	+3.35v	watts
1 ATR Long	40A	2A	2A	5A	250
or optionally	80A	4A	4A	10A	500
1 ATR Short	40A	2A	2A	5A	250
$^1/_2$ ATR Short	18A	1.25A	1.25A	-	120

115 Vac Input
MIL-STD-704D, 100-122 Vac steady state, 47-400 Hz, 160 Vac transient. 1ATR Long and 1ATR Short, single or 3 phase or optionally 270 Vdc. $^1/_2$ ATR Short, single phase only.

	Power Supply Capacity				
	+5 v	+12 v	-12 v	+3.35v	watts
1 ATR Long	40A	2A	2A	5A	250
or optionally	80A	4A	4A	10A	500
1 ATR Short	40A	2A	2A	5A	250
$^1/_2$ ATR Short	18A	1.25A	1.25A	-	120

Backplane options

The backplanes accommodate mating connectors for the VMEbus boards and standard power supplies. Also supported are transition connectors for application specific and standard front panel wiring.

Standard backplanes utilise 5 row DIN connectors (160 way J1/P1 and J2/P2) in order to provide the maximum I/O potential and access to future VME board level designs. A choice of P0 connectors is available. Optionally a backplane loaded with conventional 3 row DIN connectors (96 way J1/P1 and J2/P2) may be ordered.

Hermetic seals

Each chassis may be specified to be hermetically sealed for applications where high levels of humidity may be encountered or where the configured system must be able to tolerate total immersion in water.

Systems configuration and design support

Systems may be supplied un-wired or complete with application specific connectors and wiring. In addition the desired software environment may be pre-loaded prior to shipment. All systems are supplied with a detailed configuration drawing set.

As a design service a selection of environmental test reports are available and if appropriate Radstone is able to supplement this by undertaking application or configuration specific testing.

Specification

Low pressure (Altitude)	Storage and operation to 50 000ft. Also rapid decompression to maximum altitude	
Operating temperature	-55˚C to +71˚C (-40˚C to +55˚C with level 4 boards, 30 min excursion to +71˚C)	
Storage temperature	-62˚C to +105˚C	
Temperature shock	Two chamber shock test consisting of 3 cycles of transfer between maximum and minimum storage temperatures with a maximum transfer time of 5 minutes	
Rain	Simulated dripping water through leakage or condensation	
Humidity	Up to 95% RH with varying temperature. 10 cycles 240 hrs minimum	
Salt Fog	Continuous exposure to mist with 5% salt solution 48 hrs	
Sand and Dust	Blowing sand up to 95 ft/sec (29 m/sec) Blowing dust up to 29 ft/sec (8.9 m/sec)	
Acceleration	Structural and operational tests. Acceleration levels up to 13.5g.	
Vibration	Category 5 equipment of MIL-STD-810E vibration spectrum fig 514.4-8 15 to 2000 Hz at 0.1g2/Hz (RMS 12g approximately)	
Shock	Terminal peak saw tooth test pulse of fig 516.4-4 of MIL-STD-810E at the level of 20g for 11ms for fan assisted chassis and 40g for 11ms for baseplate chassis.Bench handling in accordance with procedure VI of method 516.4 of MIL-STD-810E.	
EMC to MIL-STD-461C MIL-C-38999 connectors fitted	Conducted emissions	CE01, CE03 and CE07
	Conducted susceptibility	CS01, CS02 and CS06
	Radiated emissions	RE01 and RE02
	Radiated susceptibility	RS01, RS02 and RS03
Note: Disk options may affect environmental specification		

Weights

Including backplane, PSU and front panel with connectors. Weight reduced versions of the baseplate cooled chassis are available.

Fan assisted	
1ATR Long	42.1 lbs
1ATR Short	35.6 lbs
1/2 ATR Short	18.1 lbs
without fan	
1ATR Long	34.4 lbs
1ATR Short	27.9 lbs
1/2 ATR Short	17 lbs
baseplate cooled	
1ATR Long	45 lbs
1ATR Short	31.2 lbs
1/2 ATR Short	18.7 lbs

Ordering information

Sales Code	
	15 Slot 1ATLong Boxes
1ATRL-001IV	28Vdc primary power, blown sidewalls, no fan
1ATRL-001FIV	28Vdc primary power, blown sidewalls with fan
1ATRL-001BBIV	28Vdc primary power, baseplate conduction cooled
1ATRL-022IV	115Vac, 1 phase, 400Hz, blown sidewalls, no fan
1ATRL-022FIV	115Vac, 1 phase, 400Hz, blown sidewalls, with fan
1ATRL-002BBIV	115Vac, 1 phase, 400Hz, baseplate conduction cooled
1ATRL-002IV	115Vac, 3 phase, 400Hz, blown sidewalls, no fan
1ATRL-002FIV	115Vac, 3 phase, 400Hz, blown sidewalls, with fan
1ATRL-002BBIV	115Vac, 3 phase, 400Hz, baseplate conduction cooled
RL1ATRL-075	75mm high raised lid for any 1ATRL
RL1ATRL-060	60mm high raised lid for any 1ATRL
H	Hermetic seal for any 1ATRL (add to above code)
	8 Slot 1ATR Short Boxes
1ATRS-001IV	28Vdc primary power, blown sidewalls, no fan
1ATRS-001FIV	28Vdc primary power, blown sidewalls with fan
1ATRS-001BBIV	28Vdc primary power, baseplate conduction cooled
1ATRS-022IV	115Vac, 1 phase, 400Hz, blown sidewalls, no fan
1ATRS-022FIV	115Vac, 1 phase, 400Hz, blown sidewalls, with fan
1ATRS-002BBIV	115Vac, 1 phase, 400Hz, baseplate conduction cooled
1ATRS-002IV	115Vac, 3 phase, 400Hz, blown sidewalls, no fan
1ATRS-002FIV	115Vac, 3 phase, 400Hz, blown sidewalls, with fan
1ATRS-002BBIV	115Vac, 3 phase, 400Hz, baseplate conduction cooled
RL1ATRS-075	75mm high raised lid for any 1ATRS
RL1ATRS-060	60mm high raised lid for any 1ATRS
H	Hermetic seal for any 1ATRS (add to above code)
	5 Slot 1/2 ATR Short Boxes
1/2ATRS-001FI	28Vdc primary power, blown sidewalls with fan
1/2ATRS-002FI	115Vac, 1 phase, 400Hz, blown sidewalls, with fan
1/2ATRS-001BBI	28Vdc primary power, baseplate conduction cooled
1/2ATRS-002BBI	115Vac, 1 phase, 400Hz, baseplate conduction cooled
1/2ATRS-003BBI	28Vdc primary power, A32/D32 on all slots, baseplate
	conduction cooled
H	Hermetic seal for any 1/2ATRS (add to above code)
ST1E-001T	2 slot battery back up module
HM-1	Capacitive hold up module
DPAB-001	Debug Port Adapter Box, ATR cable

RADSTONE TECHNOLOGY

Meet us on the Web at www.radstone.com

RADSTONE and the Radstone symbol are registered trademarks of Radstone Technology PLC.
All other trademarks recognized.

© Radstone Technology PLC 1997

This publication is issued to provide outline information only which (unless agreed by the company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or be regarded as a representation relating to products or services concerned. The company reserve the right to alter without notice the specification, design, price or conditions of supply of any product or service.

UK
Radstone Technology PLC
Water Lane, Towcester,
Northants NN12 6JN
Telephone: +44 (0) 1327 359444
Fax: +44 (0) 1327 359662
E-mail Addresses:
Sales: sales@radstone.co.uk
Support: support@radstone.co.uk

USA
Radstone Technology Corporation
50 Craig Road
Montvale, NJ 07645-1709
Telephone: (800) 368-2738
Fax: (201) 391-2899
E-mail: radstone@radstone.com

Northeastern Region: (201) 391-2700
Southeastern Region: (703) 383-3150
North Central Region: (847) 304-0202
Northwestern Region: (408) 727-4795
Southwestern Region (909) 944-2560

FRANCE
Radstone Technology SA
6 avenue des Andes
91952 COURTABOEUF Cedex
Telephone: 01 64.46.04.03
Fax: 01 69.28.03.40

AUSTRALIA
Radstone Technology Pty Ltd
PO Box 59
1A First Avenue
Eastwood, N.S.W. 2122
Telephone: (02) 9874-9143
Fax: (02) 9874-9150

TAIWAN
Radstone Technology
Fl 4 No 568
Chung Cheng Road
Hsintien
R.O.C.
Telephone: (2) 218 5819
Fax: (2) 218 6248

Printed in UK Publication RT145 2k0297

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP