

POWER AND COMPUTING SOLUTIONS FOR HARSH ENVIRONMENTS

Power Solutions

CPU Modules

Backup Power & UPS

Rugged Enclosures

Industrial Relays & I/O



Located 30 minutes from Vancouver, British Columbia, a hotbed for technology and innovation, Tri-M Technologies has been engineering power and computing solutions for harsh environments for nearly 30 years. Tri-M was founded by a small group of professionals who pride themselves in developing products based on the PC/104 embedded computer standard, a standard associated with reliability in extreme environments.

Today, Tri-M is a new company. With a new leadership team in place, a strategy to bring the company to the forefront of the embedded industry, and the industry expertise to develop products and solutions that solve our customers' problems, we are ready to work with you. We've added resources to our Application Engineering, System Integration, Sales, Marketing, and Supply Chain groups. We have also relocated to a facility designed specifically for continued product quality and reliability. We are building a company that will be a leader and one that you can count on for your power and computing solutions.

Our embedded solutions are designed to withstand harsh environments where exposure to shock, vibration, dust, moisture and extreme temperatures can impede the performance of all but the most hardened systems. Solutions include DC-to-DC Converters, CPU Modules, Backup Power and UPS Systems, Enclosures, I/O and Industrial Relays.

We've solved the power and computing needs of most types of stationary and motorized vehicles and equipment.

Whether it's used on land, undersea or in the air, chances are we've been there and have the expertise to make your equipment operate at its best.

Give us a call today and see how we've changed and how we can help you find the right solution for your specific application.

Sincerely,



John Diack
President & CEO



BESTSELLER**HE104****50 WATT HIGH EFFICIENCY PC/104 POWER SUPPLY**

- +5V & +12V standard, -5V and -12V optional
- 6V to 40 VDC input range
- “Load Dump” transient protection
- Clean and Filtered Power for the PC/104 bus
- Extended temperature: -40° to 85°C

**V104****25 WATT PC/104 POWER SUPPLY**

- +5V only standard. +12V, -5V and -12V optional
- 8V to 30VDC input range
- Clean and Filtered Power for the PC/104 bus
- “Load Dump” transient protection

**HE104-DX****60 WATT PC/104 POWER SUPPLY**

- +5V, +12V, -5V, and -12V DC output
- 6V to 40VDC input range
- High efficiency up to 95%
- PC/104 compliant
- Extended temperature: -40°C to +85°C

**HE104-75W****75 WATT HIGH EFFICIENCY PC/104 POWER SUPPLY**

- +5V, +12V, -12V outputs
- 6V to 40V DC input range
- High efficiency up to 95%
- Extended temperature: -40°C to +85°C

**HE104+DX****108 WATT PC/104+ POWER SUPPLY**

- +3.3V, +5V, +12V and -12V DC output
- 6V to 40V DC input range
- High efficiency up to 95%
- Extended temperature: -40°C to +85°C



HPSC104-SER

160 WATT HIGH POWER PC/104 POWER SUPPLY WITH SMART CHARGING

- 5V (25amp), 12V (5amp), V5SBY (7amp) output
- 6V to 40V DC input range
- Charging voltage: 10V - 35V
- Both PC/104 and RS232 interfaces
- UPS operation with battery pack
- High power smart charging: Multistage Charging SLA, NiCd, NiMh, SMBus Level 3 compatible charger
- Extended temperature: -40° to 85°C



HESC104

60 WATT PC/104 POWER SUPPLY WITH SMART CHARGING

- 6V to 40VDC input range
- Charging voltage: 9.5V to 19.5V
- UPS operation with battery pack
- Multistage charging SLA, NiCd, NiMh
- SMBus Level 3 compatible charger
- Extended temperature: -40° to 85°C



HESC104+

108 WATT PCI104+ POWER SUPPLY WITH SMART CHARGING

- +3.3V, +5V, +12V, -12V DC output
- 6V to 40VDC input range
- High power smart charging: Multistage charging SLA, NiCd, NiMh, SMBus Level 3 compatible charger
- Extended temperature: -40°C to +85°C



Specification	Watts (not including batt charging)	Input Range	+3.3V Output	+5V Output	+12V Output	-5V Output	-12V Output	V5SBY	PC/104 BUS	PC/104+ BUS	Power Input(s)	Charging Voltage Range
V104	25	8-30V DC	n/a	5.0A	1.0A*	400 mA*	160 mA*	n/a	standard	n/a	Main	n/a
HE104	50	6-40V DC	n/a	10.0A	2.0A	400 mA*	500 mA*	n/a	standard	n/a	Main	n/a
HE104-DX	60	6-40V DC	n/a	12.0A	2.5A	400 mA	500 mA	n/a	standard	n/a	Main	n/a
HE104-75W	75	6-40V DC	n/a	15.0A	3.0A	n/a	500 mA	n/a	standard	n/a	Main	n/a
HE104+DX	108	6-40V DC	10.0A	15.0A	3.0A	n/a	500 mA	n/a	standard	standard	Main	n/a
HESC104	60	6-40V DC	n/a	12.0A	2.5A	400 mA	500 mA	n/a	standard	n/a	Main, Battery	9.5V to 19.5V
HPSC104-SER	160	6-40V DC	n/a	25.0A	5.0A	400 mA	500 mA	7.0A	standard	n/a	Main, Battery	10V to 35V
HESC104+	108	6-40V DC	10.0A	15.0A	3.0A	n/a	500 mA	n/a	n/a	standard	Main, Secondary, Battery	9.5V to 19.5V
HPS3512	203	6-40V DC	10.0A	15.0A	5.0A	n/a	n/a	7.0A	n/a	n/a	Main, Secondary	n/a
HESC-SERD	60	6-50V DC	n/a	12.0A	2.5A	400 mA	500 mA	n/a	n/a	n/a	Main, Secondary, Battery	10V to 35V

n/a: Not Available
*optional

V5SC-SER-UPS

35 WATT HIGH EFFICIENCY POWER SUPPLY

- 750mA-Hr Battery Backup
- 6V to 40VDC input range
- Supports up to 8 digital temperature sensors
- RS232 serial port
- Opto-coupled inputs
- Extended temperature: -40° to 85°C



HPS-3512

203 WATT POWER SUPPLY WITH POWER MANAGEMENT

- Total power: 203 Watt with ATX interface
- +3.3V, +5V, 12V outputs
- 6V to 40VDC input range
- Built in temperature sensor
- RS232 serial port
- Optocoupled inputs
- Extended temperature: -40°C to +85°C



HESC-SERD

60 WATT SERIAL POWER SUPPLY WITH DUAL SMART CHARGING

- +5V, +12V, -5V, and -12VDC output
- 6V to 50VDC input range
- Charging voltage: 10V to 35VDC
- UPS operation with optional battery module
- Supports charging two standard type battery modules (supports only one SMBus battery)
- Extended temperature: -40°C to +85°C



Max Charging Current	Power Management	Power Management Firmware	Smart Battery Charging	Reverse Polarity Diode	AC BUS Termination	Serial Connection	Host CPU Control	RS-232 UPS Handshake Signals	Off Board RTC Support	Weight	Temperature Range
n/a	optional	PBasic	n/a	optional	optional	n/a	n/a	n/a	n/a	87.7g / 3.10oz	0°C to 70°C
n/a	optional	PBasic	n/a	optional	optional	n/a	n/a	n/a	n/a	133.8g / 4.72oz	-40°C to 85°C
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	133.5g / 4.71oz	-40°C to 85°C
n/a	n/a	n/a	n/a	standard	n/a	n/a	n/a	n/a	n/a	115.1g / 4.06oz	-40°C to 85°C
n/a	n/a	n/a	n/a	standard	n/a	n/a	n/a	n/a	n/a	134.0g / 4.73oz	-40°C to 85°C
4.0A	standard	HESC-UPS	multistage	standard	n/a	n/a	PC/104	n/a	n/a	164.4g / 5.80oz	-40°C to 85°C
4.0A	standard	HESC-UPS18	multistage	standard	n/a	standard	RS-232, PC/104	standard	standard	159.3g / 5.62oz	-40°C to 85°C
4.0A	standard	HESC-UPS18	multistage	standard	n/a	standard	RS-232, PC/104+	n/a	standard	145.6g / 5.14oz	-40°C to 85°C
n/a	standard	HPS-UPS18	n/a	standard	n/a	standard	RS-232	standard	n/a	157.7g / 5.56oz	-40°C to 85°C
4.0A	standard	HESC-UPS18	multistage	standard	n/a	standard	RS-232	standard	standard	260.95g / 7.30oz	-40°C to 85°C

VDX104SERIES**LOW POWER: 2.5W @ 5V**

With an 800 MHz processor, our VDX104 CPU boards offer the quickest route to integrating a full x86 AT-compatible computer into your PC/104 or PC/104-Plus embedded control application. In addition, the built-in peripherals minimize the number of additional modules required.

By combining the system hardware with extended temperature operation, onboard soldered 512 MB SDRAM, I/O, software (integrated OS image) and solid-state mass storage, these modules lower your exposure to possible development risks and costs, significantly reducing your time-to-market.

800MHZ VORTEX86DX PC/104 OR PC/104-Plus MODULES

- Onboard 800MHz Vortex86DX SoC
- 4 Serial, 2 USB 2.0
- 10/100 LAN (Dual LAN on VDX104+)
- Type I CompactFlash™
- Onboard soldered DDR2 RAM
- Extended temperature operation
- PC/104-Plus (VDX104+) or PC/104 (VDX104) compliant
- Fanless



BAT104

BAT104-NICD

- Nickel Cadmium batteries
- 600 mA-hr @ 8.4V Nickel Cadmium
- Digital I²C temperature sensor

BAT104-NIMH

- Nickel Metal Hydride Batteries
- 2700mA-hr @ 8.4V
- Digital I²C temperature sensor



BAT-SLA

- Sealed Lead Acid batteries
- Digital I²C temperature sensor
- PC/104 footprint

BAT-SLA25

- 2500mA-hr @ 10.0V

BAT-SLA45

- 4500mA-hr @ 10.0V



CBP MODULES

SUPERCAPACITOR UPS

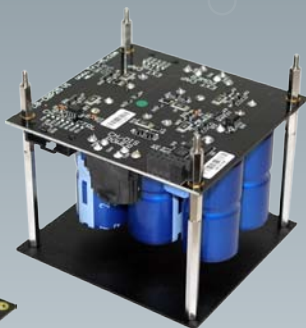
SUPERCAPACITOR BACKUP POWER SOURCE

The CBP Modules use supercapacitors rather than conventional batteries. They charge very quickly and are able to be recharged 500,000 times! This is beneficial for applications that have either a large number of battery discharge cycles or where a “maintenance free” solution is required such as remote terminals or mobile data collectors.

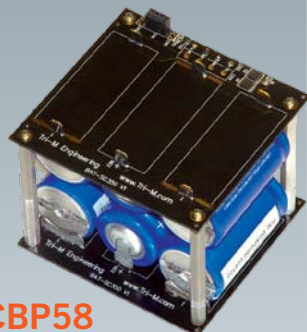
- 500,000 recharge cycles
- 10 Farad, 25 Farad and 58.33 Farad capacities
- Quick charging
- Not affected by deep discharges
- Combine with an HESC or HPSC104-SER series power supply to create a “maintenance free” uninterruptible power source



CBP10



CBP25



CBP58

VersaTainer

VERSATILE PC/104 AND EBX ENCLOSURE

The VersaTainer is a rugged aluminum enclosure that can be used as either a PC/104, PC/104+ or EBX enclosure, allowing greater internal space for connector and cabling requirements.

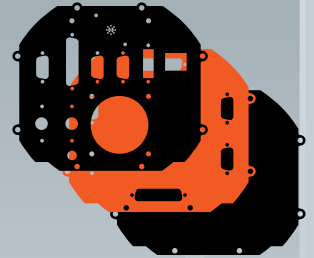
- Internal shock and vibration protection
- Generous internal space is provided for connector and cabling requirements
- For sizes VT8 and larger, an optional EBX mount can be added
- Easily customized length, coating, etching, milling, mounting



Versatile design can mount PC/104, PC104+ or EBX boards, with room for accessories such as hard drives



Rubber mounts provide dual shock and vibration isolation



We can design endcaps for your specific system

CUSTOM OPTIONS

Tri-M's CanTainer, FlexTainer, and VersaTainer rugged enclosures are made from .125" aluminum with a standard application. We also offer coating options such as Anodizing, Powder Coating, Electro-polishing; each providing options are also available.

Contact our sales team to understand the benefits and options available that best suit your application.

CanTainer

RUGGED PC/104 ENCLOSURE

The CanTainer is a rugged, anodized aluminum enclosure designed to house a PC/104 payload in harsh environments. With an isolating shockmount and an internal stack vibration mount, the CanTainer provides maximum protection from high frequency vibrations and low frequency G-forces. Custom sizes and endcaps are available.

- Standard lengths between 2" and 12"
- Passively cooled
- PC/104 mounting
- Rugged anodized aluminum
- Dual shock and vibration isolation
- Easily customized length, coating, etching, milling, mounting



FlexTainer

EPIC, MINI-ITX AND EBX ENCLOSURE

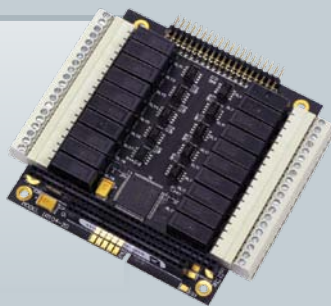


- Dual shock and vibration protection system
- Passively cooled
- Easily customized length, coating, etching, milling, mounting
- Rugged anodized aluminum

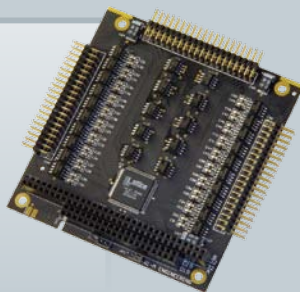
Standard anodized black finish. They are available in standard lengths but we can also cut-to-length for your added protection for the environment your system will encounter. Custom etching, colours and mounting

IR104**INDUSTRIAL RELAY BOARD**

- Output rating 5 amperes @ 250VAC or 30VDC
- 3V to 24V AC or DC input
- I/O mapped
- 20 optoisolated input and 20 output relays
- Operating temperature: -25° to 70°C

**IO104-60IN****OPTOISOLATED 60 INPUTS**

- Input Range: 3V to 24V AC or DC input
- Inputs on standard 0.1" pitch 40 pin headers
- I/O access through I/O mapped
- Optoisolated inputs
- Multiple IO104-60IN boards can be stacked

**FLEXCOM104-GPS****GPS AND MULTITECH SOCKET MODULE CARRIER BOARD**

The FlexCom104-GPS is a PC/104 flexible communications module that provides a complete I/O solution for applications requiring GPS, serial, and wireless or wired communication. It features support for up to two Multitech Universal Socket compatible devices including GSM/GPRS, WiFi®, and Bluetooth®, a 16-channel ANTARIS 4 GPS receiver, and an RS-232 serial port. I/O addresses and IRQ are selectable.

- Supports up to two 5V Multi-Tech Socket Modems
- 16-Channel ANTARIS 4 GPS, selectable I/O Address and IRQ
- One RS-232 isolated serial port
- Extended temperature: -40°C to +85°C



SYSTEMS & SOLUTIONS

Customer Requirements

System Design

Unit Testing

System Integration

System Testing

Customer Acceptance

System Deployment

For years Tri-M has provided system design, development and integration services in addition to our product offerings. The Design, Development and Integration part of our business focuses on leveraging our expertise in rugged embedded systems to provide customers with solutions to their embedded hardware problems. We offer mass customization of products, ruggedized solutions for harsh environments, integration of hardware, software, power solutions and environmental enclosures, and system validation testing. Our systems can be designed for use in extended temperature operations and can include: soldered on memory, fanless operation, solid state flash disks, and hardened enclosures for operability in the harshest environments.

To meet your system needs we follow a disciplined approach with each project in order to provide the best solution to the customer within the agreed upon timeframe. Our process ensures your expectations are met and we deliver a solution that supports your specific application.

CAPABILITIES

Tri-M's capabilities include in-house expertise to modify or develop products and solutions that operate in the harshest environments. If your system is operating in a challenging environment, talk to us about your systems environment and what you need to ensure maximum availability.

We can:

- Incorporate unique connectors to meet particular specifications and standards
- Change Bus formats
- Provide Conformal Coating (Acrylic, Silicone, Urethane)



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