

# Upgrading the M1A1

## Overcoming Obsolescence



### Upgrading the M1A1 for the 21st Century

Drop-in replacement for legacy LRU

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Enhanced reliability

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O&S cost savings

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Expansion capability (RTNB and RHNB)

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"The Redesigned Turret Networks Box (RTNB), Redesigned Hull Networks Box (RHNB) and Upgraded Tank Commander's Panel (UTCP) are the latest examples of successful Horizontal Technology Insertion. They not only address the problem of system obsolescence but also provide significantly increased functionality, contributing to the extension of the M1A1 service life cycle."

#### Common Environmentals

- Operating Temp: -25°F to 140°F
- Storage temp: -60°F to 160°F
- Shock (Basic): 30g
- Shock (Gun Fire): 100g
- Shock (Ballistic): 200g
- Shock (High Intensity): 980g
- Vibration: 5-500 Hz
- Humidity: Relative humidity to 100%
- Nuclear radiation detector with supply crowbar circuitry
- EMI/EMC: MIL-STD-461A, Notice 4

# Technical Specifications

## RTNB



- Compatible with the M1A1D

### Power Input

- MIL-STD-1275A, 18-32 Vdc, single fault tolerant
- 400 Amp distribution

### Power Control

- 30 solid state, overcurrent protected, MMI controlled circuit breakers:

- 2@ 20A, 3@ 10A, 6@ 6A, 1@ 7A, 7@ 15A, 10@ 2A, 1@ 0.5 A
- 4 @ 25 Amp Utility Jack magnetic switchable circuit breakers
- 1 @ 25 Amp Communications, magnetic switchable circuit breaker
- 1 @ 15 Amp 3-pole Main Gun Firing magnetic switchable circuit breaker
- 1 @ 7 Amp spare solid state circuit breaker

### Versa Module Eurocard Chassis

- ANSI/IEEE Std 1014-1987 5 slot conduction cooled card cage, VME 64 compatible
- Compartmentalized cage electrically/magnetically isolated from RTNB power switching circuitry
- 150 Watt power supply
- Embedded Diagnostics Processor

### Man Machine Interface

- 2 row X 24 Character LED display with full character graphics capability
- Display intensity digitally slaved to Commander's Panel lamp adjustment
- 4 push button momentary action keypad
- Secondary RS-232/422 interface available for multiplexing display/keyboard functions

### Built-In-Test /Vehicle Diagnostics

- Two internal SideCar™ modules
- Circuit breaker outputs monitored and status available at MMI for LRU self-test failure identification
- RS-232/422 serial control port for automated shop testing

## RHNB



### Power Input

- MIL-STD-1275A, 18-32 Vdc, single fault tolerant
- 200 Amp Distribution

### Power Control

- 27 solid state, overcurrent protected, MMI controlled circuit breakers:
- 1@ 80A, 2@ 16A, 5@ 15A, 1@ 10A, 3@ 7A, 6@ 6A, 1@ 5A, 6@ 2A, 2@ 1A
- 1 @ 20 Amp Utility Jack magnetic switchable circuit breaker
- 1 @ 6 Amp spare solid state circuit breaker
- Versa Module Eurocard Chassis
- ANSI/IEEE Std 1014-1987 7 slot conduction cooled card cage, VME 64 compatible
- Compartmentalized cage electrically/magnetically isolated from RHNB power switching circuitry
- 150 Watt power supply
- Embedded Diagnostics Processor

### Man Machine Interface

- 2 row X 24 Character LED display with full character graphics capability
- Display intensity digitally slaved to Driver's Master Panel lamp adjustment
- 4 push button momentary action keypad
- Secondary RS-232/422 interface available for multiplexing display/keyboard functions

### Built-In-Test/Vehicle Diagnostics

- Two internal SideCar™ modules
- Circuit breaker outputs monitored and status available at MMI for LRU self-test failure identification
- RS-232/422 serial control port for automated shop testing

## UTCP



### Power Input

- MIL-STD-1275A, 18-32 Vdc, single fault tolerant

### Power Control

- Master Power switch
- Turret Power switch
- Man Machine Interface
- Retains all controls of the current Tank Commander's Panel in a smaller and lighter package

- Adjustable display intensity Display intensity digitally slaved to Driver's Master Panel lamp adjustment
- 4 push button momentary action keypad
- Built-In-Test/Vehicle Diagnostics
- Panel light test
- RS-232/422 serial control port for automated shop testing and firmware download

## GENERAL DYNAMICS

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