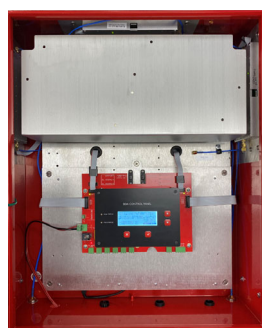


## Class A and Class B Signal Boosters / BDA for ERCES



BDA Inside View



BDA With Battery Backup PSU Below

Channel and Band Selective, DSP Programmable Models M3 Series:

- SB400M3A – Class A, UHF Model, 406.1 – 512MHz
- SB400M3B – Class B UHF Model, 406.1 – 512MHz
- SB800M3A – Class A, 800MHz
- SB800M3B – Class B, 800MHz
- SB7800M3A – Class A, 700MHz and 800MHz Dual Band
- SB7800M3B – Class B, 700MHz and 800MHz Dual Band

Radio Solutions Inc. Class A and Class B BDAs are high gain, high power, channel selective (class A) or band selective (class B) signal boosters/bi-directional amplifiers (BDA) that can be designed and customized to meet all public safety frequency band ranges in ERCES (Emergency Radio Communications Enhancement Systems) applications. They are designed to provide reliable two-way radio signal coverage inside buildings, tunnels and other structures. The state-of-the-art DSP-based filter design combined with our industry leading band-pass duplexer filters deliver a reliable performance in even the most challenging RF environments. The product delivers high RF power with 5W rated amplifiers while maintaining the industry leading power efficiency and reliability. The all-inclusive design includes the NFPA, IFC and UL compliant supervisory interfaces, AC power supply, Battery Charger and Dedicated Annunciator Panel. RSI M3 Series BDAs and power supplies have been designed to meet and exceed the published UL2524 2<sup>nd</sup> Ed. standard requirements for In-building 2-Way Emergency Radio Communication Enhancement Systems, NFPA and IBC/IFC standards compliance—making it the best choice for public safety and other mission critical applications.

### Product Highlights:

- High Power 5W (37dBm) Amplifiers with 10W (40dBm) Combined Downlink Power on 7800M3 Models
- High Gain: (92dB Typ.)
- 32-Channel Capacity (64 Channels with 7800 Model)
- Channel Selective Class A Filters (12.5 or 25KHZ)
- Band Selective Class B (500KHz, 250KHz, 150KHz, 25KHz or 12.5KHz)
- Low Processing Delay (12usec.) Filter Options
- High Selectivity Filter Options
- State-of-the-art DSP FPGA Digital Filter Design with programmable frequencies, selectivity and delay
- Low Noise Figure, Uplink Noise Squelch
- Oscillation Suppression Function built-in
- Supervisory Interfaces, NFPA-Compliant
- Built-In Control Panel with Status Indications and Trouble Logs
- NEMA-4 Rated Enclosures, Watertight Design
- High Efficiency Power Supply with a Choice of 12 - 48Hr Battery Backup

## Technical Specifications

| MODEL NUMBER:   | SB400M3A                               | SB400M3B                               | SB400M3                                  | SB800M3A                               | SB800M3B                               | SB800M3                                | SB7800M3A   | SB7800M3B   |
|---|--|--|--|--|--|--|---|---|
| Frequency Range (MHz)   | DL: 406.1-512<br>UL: 402-512           | DL: 406.1-512<br>UL: 402-512           | DL: 406.1-470<br>UL: 450-470<br>(Canada) | DL: 851-862<br>UL: 806-817             | DL: 851-862<br>UL: 806-817             | DL: 851-862<br>UL: 806-817             | UL1: 799-805<br>UL2: 806-817<br>DL1: 769-775<br>DL2: 851-862      | UL1: 799-805<br>UL2: 806-817<br>DL1: 769-775<br>DL2: 851-862      |
| FCC / IC ID   | FCC ID:<br>2AHVPSB400<br>M3A           | FCC ID:<br>2AHVPSB400<br>M3B           | IC (Canada):<br>21503-<br>SB400M3*       | FCC ID:<br>2AHVPSB80<br>0M3A*          | FCC ID:<br>2AHVPSB80<br>0M3B*          | IC (Canada):<br>21503-<br>SB800M3*     | FCC ID:<br>2AHVPSB780<br>0M3A*                                    | FCC ID:<br>2AHVPSB780<br>0M3B*                                    |
| Amplifier Composite RF Output Power dBm (W), Max.*1                 | DL: 37dBm<br>(5W)<br>UL: 37dBm<br>(5W) | DL: 37dBm<br>(5W)<br>UL: 37dBm<br>(5W) | DL: 37dBm<br>(5W)<br>UL: 37dBm<br>(5W)   | DL: 37dBm<br>(5W)<br>UL: 37dBm<br>(5W) | DL: 37dBm<br>(5W)<br>UL: 37dBm<br>(5W) | DL: 37dBm<br>(5W)<br>UL: 37dBm<br>(5W) | DL: 40dBm<br>(10W)<br>Combined<br>700+800MHz<br>UL: 37dBm<br>(5W) | DL: 40dBm<br>(10W)<br>Combined<br>700+800MHz<br>UL: 37dBm<br>(5W) |
| Duplexer Insertion Loss dB (typ.)                                   | 2.5–6 dB                               | 2.5–6 dB                               | 2.5–6 dB                                 | <2.5dB                                 | <2.5dB                                 | <2.5dB                                 | <2.1dB  | <2.1dB  |
| Gain and Power Ripple within the rated Passband dB (typ.)           | <3dB                                   | <3dB                                   | <3dB                                     | <3dB                                   | <3dB                                   | <3dB                                   | <3dB  | <3dB  |
| Selectable Channel Bandwidth for Each Channel (kHz)                 | 12.5, 25                               | 12.5, 25, 150,<br>250, 500             | 12.5, 25, 150,<br>250, 500               | 12.5, 25                               | 12.5, 25, 150,<br>250, 500             | 12.5, 25, 150,<br>250, 500             | 12.5, 25  | 12.5, 25, 150,<br>250, 500  |
| Channel Filter Capacity (Downlink + Uplink)                         | 32 + 32                                | 32 + 32                                | 32 + 32                                  | 32 + 32                                | 32 + 32                                | 32 + 32                                | 64 + 64   | 64 + 64   |
| Selectable Channel Filter Latency / Group Delay Per Channel (µsec.) | 12, 20, 48                             | 12, 20, 48                             | 12, 20, 48                               | 12, 20, 48                             | 12, 20, 48                             | 12, 20, 48                             | 12, 20, 48  | 12, 20, 48  |
| Maximum System Gain (typ.) dB                                       | 92                                     | 92                                     | 92                                       | 92                                     | 92                                     | 92                                     | 92  | 92  |
| Gain Adjustment Attenuation Range in 1dB Steps (dB)                 | 0-35                                   | 0-35                                   | 0-35                                     | 0-35                                   | 0-35                                   | 0-35                                   | 0-35  | 0-35  |
| Power Adjustment Range 1dB Steps(dB)                                | 0-15                                   | 0-15                                   | 0-15                                     | 0-15                                   | 0-15                                   | 0-15                                   | 0-15  | 0-15  |
| Intermodulation (IM3)   | <-15dBm                                | <-15dBm                                | <-15dBm                                  | <-15dBm                                | <-15dBm                                | <-15dBm                                | <-15dBm   | <-15dBm   |
| Amplifier Noise Figure  | <4dB                                   | <4dB                                   | <4dB                                     | <4dB                                   | <4dB                                   | <4dB                                   | <4dB  | <4dB  |
| Maximum RF Power Input for Rated IM3                                | -20dBm                                 | -20dBm                                 | -20dBm                                   | -20dBm                                 | -20dBm                                 | -20dBm                                 | -20dBm  | -20dBm  |
| Absolute Maximum Input Power  | 0dBm                                   | 0dBm                                   | 0dBm                                     | 0dBm                                   | 0dBm                                   | 0dBm                                   | 0dBm  | 0dBm  |
| Impedance Ω   | 50                                     | 50                                     | 50                                       | 50                                     | 50                                     | 50                                     | 50  | 50  |
| RF Connector Type   | N-Female                               | N-Female                               | N-Female                                 | N-Female                               | N-Female                               | N-Female                               | N-Female  | N-Female  |
| Supply Voltage VDC  | 28.5V DC                               | 28.5V DC                               | 28.5V DC                                 | 28.5V DC                               | 28.5V DC                               | 28.5V DC                               | 28.5V DC  | 28.5V DC  |
| Power Consumption Under Maximum Load                                | <90W                                   | <90W                                   | <90W                                     | <90W                                   | <90W                                   | <90W                                   | <150W   | <150W   |

**WARNING:** These are **NOT CONSUMER** devices. They are designed for installation by **FCC LICENSEES** and **QUALIFIED INSTALLERS**. You **MUST** have an **FCC LICENSE** or express consent of an FCC Licensee to operate this device. You **MUST** register Class B signal boosters (as defined in 47 CFR 90.219) online at [www.fcc.gov/signal-boosters/registration](http://www.fcc.gov/signal-boosters/registration). **Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation.**

Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

\* pending, expected by 8/21/20. Please check the current status

## Mechanical and Environmental Specifications

| Enclosure Environmental Rating                        | NEMA-4 (Type-4)          | NEMA-4 (Type-4)          | NEMA-4 (Type-4)          | NEMA-4 (Type-4)          | NEMA-4 (Type-4)          | NEMA-4 (Type-4)          | NEMA-4 (Type-4)          | NEMA-4 (Type-4)          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Dimensions (WxDxH)                                    | 23.23"x8.32" x24"        | 23.23"x8.32" x24"        | 23.23"x8.32" x24"        | 23.23"x8.32" x24"        | 23.23"x8.32" x24"        | 23.23"x8.32" x24"        | 23.23"x8.32" x25.4"      | 23.23"x8.32" x25.4"      |
| Weight (With Duplexers) Typ. (lbs)                    | <59                      | <59                      | <59                      | <59                      | <59                      | <59                      | <59                      | <59                      |
| Enclosure Color                                       | Red (RAL3000)            | Red (RAL3000)            | Red (RAL3000)            | Red (RAL3000)            | Red (RAL3000)            | Red (RAL3000)            | Red (RAL3000)            | Red (RAL3000)            |
| Operating Temperature °F (°C)                         | -22 to +140 (-30 to +60) | -22 to +140 (-30 to +60) | -22 to +140 (-30 to +60) | -22 to +140 (-30 to +60) | -22 to +140 (-30 to +60) | -22 to +140 (-30 to +60) | -22 to +140 (-30 to +60) | -22 to +140 (-30 to +60) |
| Recommended Operating Environment Temperature °F (°C) | -14 to +86 (-10 to +30)  | -14 to +86 (-10 to +30)  | -14 to +86 (-10 to +30)  | -14 to +86 (-10 to +30)  | -14 to +86 (-10 to +30)  | -14 to +86 (-10 to +30)  | -14 to +86 (-10 to +30)  | -14 to +86 (-10 to +30)  |
|   |                          |                          |                          |                          |                          |                          |                          |                          |
|   |                          |                          |                          |                          |                          |                          |                          |                          |

## Code and Standards Compliance

- UL 2524 (\*\*Design Compliance Only, UL Listing Pending)
- NFPA 72 Compliance
- FCC Title 47 Part 90 Compliance
- IFC Compliance
- NFPA 1221 Compliance
- FCC Title 47 Part 15b

## PSU Unit Includes Power Supply, Charger, Battery Backup and Supervision



PSU Inside The NEMA-4 Enclosure

### Product Features:

- High Efficiency (>90%)
- Fully Supervised
- Redundant AC Power Supplies
- Smart Battery Charger with Battery Supervision
- Built-in Control Panel with LED Status Indication

### Technical Specifications:

|                                |  |
|--------------------------------|--|
| AC In                          | 100 – 250V / 50-60Hz / 3A @ 120V   |
| DC Out                         | 28.5V / 7A Continuous Duty   |
| Charging Current               | 5.5A   |
| Battery Type                   | 2x12V / 75Ah SLA   |
| Supervisory Functions          | AC, Battery Capacity, Battery V, Charging Current, Load Presence, Temp, MCU PSU Diagnostic, V out, I out |
| Protection                     | DC Out and Charger Electronic Current Limiting + ATC Mini Fuse. AC Input Fuse                            |
| Operating Temperature          | -22 to +140 °F (-30 to +60 °C)   |
| Enclosure Environmental Rating | NEMA-4 (Type-4, Waterproof UL Listed)  |

### Connections:

|                     |  |
|---------------------|--|
| Enclosure Fittings  | Requires NEMA-4 Waterproof Conduit Connectors (Liquidtight or similar) |
| AC Power Connection | Built-In Duplex Power Outlet Included                                  |
| DC Connection       | Wire Terminal Included (10-14AWG Wire)                                 |
| Battery Connection  | Fuse and Wire Harness Included   |
| Supervisory         | CAT-5 Jumper to BDA  |