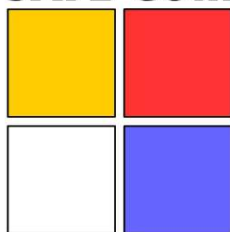


SAFE-COM**WIRELESS**

Safe-Com DASassure™
Public Safety Distributed Antenna Systems
Bidirectional Amplifier
VHF, UHF, 700, 800 & 900 MHz

- Class A Channelized Bi-Directional Amplifier (BDA)
- Supports All Five Public Safety and Federal Bands + FirstNet
- 1 and 2 Watt RF Outputs
- Field Upgradeable – add new channels and new bands
- Small Size : 12 x 15 (Type 1) or 18 x 18 inch (Type 2)
- Low Power Consumption
- Card Level n to 1 Automatic Redundancy, option
- Lowest Spurious due to advanced filtering design
- Unique front-end design handles close TXRX and Interlacing



Type 1

Safe-Com's *DASassure™* is a patent-pending fiber Distributed Antenna System utilizing a new architecture that provides a modular, upgradeable, redundant and power efficient Public Safety in-building coverage solution. This innovative approach utilizes dedicated parallel channel processing assuring the lowest spurious and highest signal performance for clear mission-critical coverage enhancement. The modular hot-swap card system permits single channel expansion on any frequency thanks to it's micro-power™ amp architecture. The design is the most compact BDA available – fitting up to 5 bands into a ~12x15x6inch NEMA 4 unit. All this with the industry's lowest power consumption of 40 watts* avg. at quiescent operation. This also makes the battery backup system the smallest available with 12 hours packed into < 0.5 ft3. Safe-Com's high-quality manufacturing system and superior applications support assures your success and the public's safety.

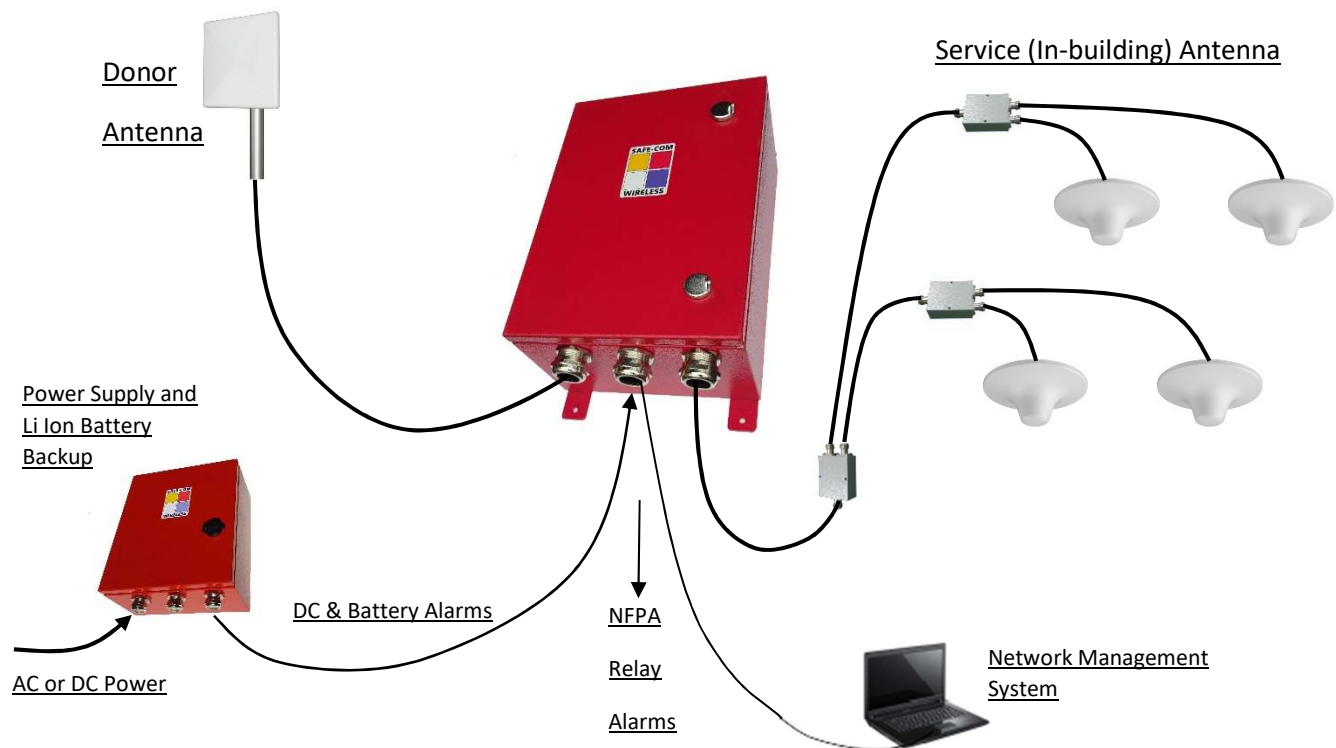
Parameter	Value
Output Power per Band Two types: 1 Watt and 2 Watt Power per channel reduces 3.5dB per doubling e.g. 16 channels @ UHF: +16.5dBm per channel	7, 8, 9, UHF: 20dBm typ. with 8 channels VHF: 20dBm typ. with 4 channels 2 Watt version: Dual 1 Watt outputs
RF Input, Max, no damage	-10 dBm
Noise Figure, typ.	8 dB
Gain, max	100 dB
Spurious	FCC Compliant
Gain Control	30 dB
Operating Temperature	-10 to +50°C
Power (DC via Battery Backup)	40 to 100W typ.*
Size Type 1 (20 slots)	10 x 15 x 7 inches, 25lbs
Size Type 2 (34 slots)	18x18 x 7 inches, 40lbs

*Power consumption varies with number of keyed -up channels.
For exact power consumption and battery back-up requirements, consult sales.

NFPA Alarm Outputs: Relay outputs

1. System Component Failure – Summary Alarm
2. Active emitter fail / Power amp
3. Donor Antenna Fail
4. Battery Charge Fail
5. AC Power loss
6. Low Battery Capacity

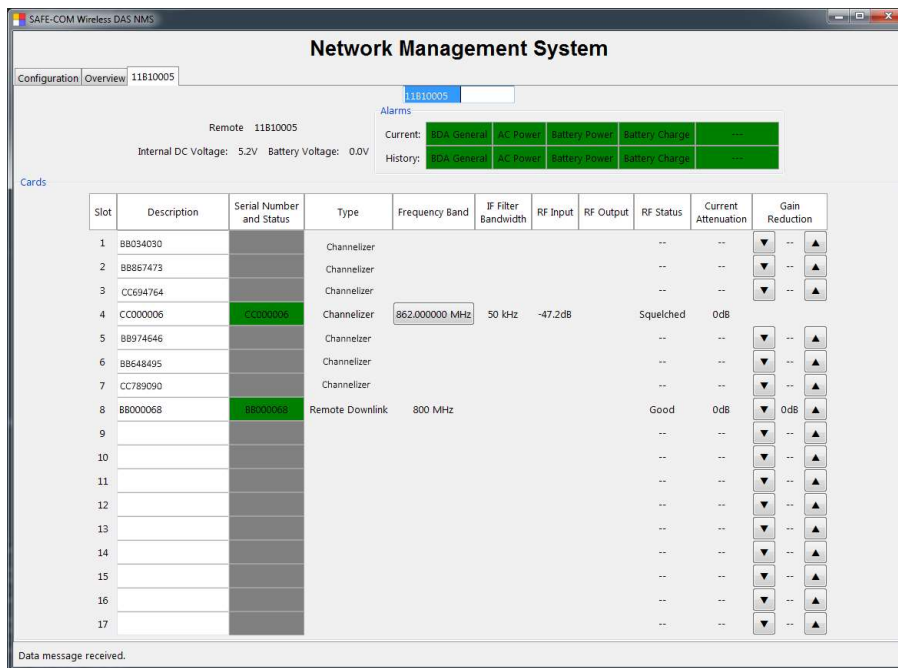
Example System Diagram - BDA



The Safe-Com Wireless Public Safety Bidirectional Amplifier (BDA) features:

- Plug-in Modular card system: Each low-cost card performs narrow-band signal processing on a single frequency. This allows wide flexibility in configuring the system with mixed frequency bands, for example 3 VHF, 8 UHF and five 800 MHz frequencies in one Class A channelized unit.
- Excellent wall plug efficiency: Due to the modular architecture, frequencies that are not keyed up can have their cards shut down to preserve power. This reduces heat within the NEMA enclosure, relaxes demand on battery backup reducing costs, and improves reliability for a longer life and fewer failures.
- Advanced Super-heterodyne front end: Significantly improves near-far performance compared to legacy technology, eases close-in TX and RX frequency management, and therefore interlaced frequencies are handled with ease – as close as <200kHz. Consult with Applications Engineering with your challenging frequency spectrum.

Network Management System



DASSassure™ NMS

A full featured Network Management Systems assures you have control of your radio network. Shown here is the control panel of the NMS displaying the individual channel control.

High reliability and ultimate flexibility is assured by design. The ground breaking architecture of the Safe-Com DAS solution guarantees it.

No major single point of failures as can be found in other current designs. Public safety requires reliability and Safe-Com delivers.

You have full insight and remote control of each band, each channel and full independent uplink and downlink controls. Critical monitor values related to each fielded unit is displayed clearly and distinctly. (Graphic details subject to change).

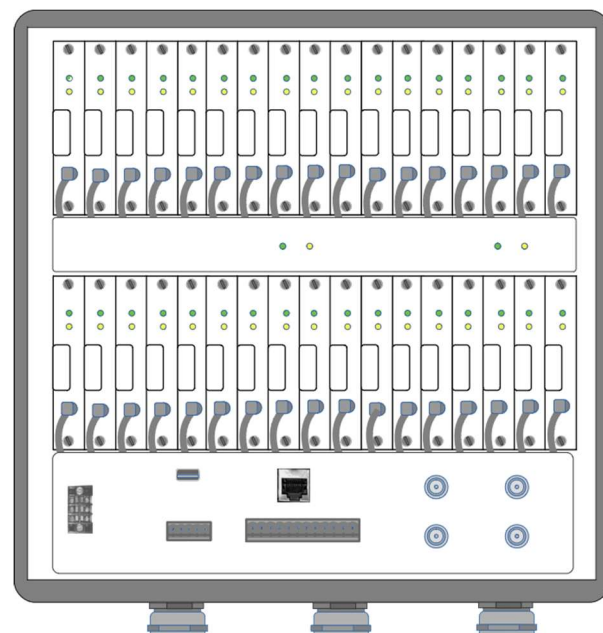
BDA Layout – Type 2 enclosure

Modular architecture offers full flexibility for frequency and band configuration.

Built-in Card level n to 1 redundancy (option).
The system recovers within seconds automatically upon a module failure.

Efficient power usage. All channel frequency modules not used are powered down. Reduces load on battery backup and improves reliability.

Alarm /Power Panel Connections: DC power in- 3 position screw terminal; USB local NMS connection; Battery/ power Alarm input, Ethernet (option); NFPA Alarm outputs; Bidirectional RF ports (Example shown: UHF, 700/800 Donor Ports and two dual service Antenna Ports (2 Watt option) .



Safe-Com DASassure™
Public Safety Distributed Antenna System
Off-Air Solution
VHF, UHF, 700, 800 & 900 MHz

Product Ordering Information:

Series Model Number: SAFE-1000 Standard Features:

- NEMA 4 Enclosure
- NEMA Red Color
- Alarm Relay outputs
- USB Computer Interface
 with Windows NMS Configuration Software
- DC Input Power Supply

Base Model Numbers:

SAFE-1030 : BDA Class A Channelizer
Other options:
SAFE-1010 : Head-end Fiber Unit – Direct Connect to Radio Base-Station
SAFE-1015 : Remote Fiber Unit – Used with SAFE_1010 or SAFE-1020 Fiber DAS
SAFE-1020 : Off-Air Channelized (Class A) Fiber DAS

Model Number Format:

SAFE-1030: **A**V – **B**U – **C**7 – **D**8 – **E**9 – **F**F

A = Number of RF radio channel in VHF Band – Including Federal Bands 138 – 150MHz
B = Number of RF radio channel in UHF Band – Including Federal Bands 380 – 420MHz
C = Number of RF radio channel in 700 MHz Band – narrow-band
D = Number of RF radio channel in 800 MHz Band
E = Number of RF radio channels in 900 MHz Band
F = Number of 5MHz channels in First-Net Band

Options:

PX : Power options: X = **1** for 12V DC input (default external with battery backup unit); **2** for -48V DC
BY : Battery options: Y = **12** or **24** for hours of Battery backup – external unit 10 x 12 x 6 inches, with charger
RS : Redundancy Switching at Card Level. Requires open plug-in slots available for backup card(s).
EN : Ethernet NMS option for remote access, monitoring and SNMP, (future, check availability at time of order)
Fiber options
TZ : Topology options: Z = S for Star (default) or L for Linear or X for hybrid (define configuration with order)
SA : Built-in software defined spectrum analyzer: **A**: default – local viewing, **B**: Remotely accessible

Example Order Model Number: SAFE-1030: 2V-4U-48 Options: B12

Description: BDA - Channelized Class A (SAFE-1030)
 with two VHF (2V), four UHF (4U), four 800 (48) MHz channels

Options included: B12 = 12 Hour Battery backup

Frequencies and modulation required with order – example detail shown:

two VHF: 151.475 DL/151.975 UL (FM) / 162.500 DL/163.500 UL (FM)
two UHF: 453.475 DL/458.475 UL (Tetra) / 500.8 DL/503.8 UL (Tetra)
two 800 : 854.3125 DL (-45MHz UL) / 854.4375 DL (-45MHz UL) P25

Power / Mechanical

Power Supply	85-240 VAC (12 VDC, -48 VDC option) Note: Depending on configuration, power supply may be external unit
Power Consumption	100 watts maximum peak, 40 watts avg. (with 10 frequencies, lower power with fewer frequencies)
Size, weight	15 x 12 x 6.5 inches - 20 lbs. per unit (Type 1) or 18 x 18 x 7 inches - 30 lbs. (Type 2)
Enclosure, ports	NEMA 4, IP65, Heavy duty Nickel-plated brass water-proof cable feed-throughs
Alarms	NFPA alarm outputs, optically isolated contact closures
Battery Backup Option	12 or 24 hours – 300 x 275 x 165mm NEMA 4 (12 hour unit)
FCC Identifier	2AKSM-SAFE2

The information enclosed is believed to be accurate. Changes may be made to improve the availability or the performance of the product.