



SAFE-COM Wireless

Public Safety Distributed Antenna System

Product Line Series
SAFE-1000

User Manual

Rev 1.0

Safe-Com Wireless
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Part 90 Signal Booster

WARNING. This is **NOT** a **CONSUMER** device. It is 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

"<http://www.fcc.gov/signal-boosters/registration>" 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."

Part 20 Industrial Booster

WARNING. This is **NOT** a **CONSUMER** device. It is 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.

Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation."

Part 15 Requirement

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Liability Disclaimer

The information contained in this document is assumed to be correct and current. The manufacturer is not responsible for errors or omissions and reserves the right to change specifications at any time without notice. Safe-Com Wireless assumes no responsibility for its use nor for any indirect, incidental damage or loss resulting from its use.

Under Industry Canada regulations, this radio frequency power amplifier (insert Industry Canada certification number of radio frequency power amplifier) may only be used with the transmitter with which the amplifier has been certified by Industry Canada. The certification number for the transmitter with which this amplifier is permitted to operate is IC:22303

Conformément à la réglementation d'Industrie Canada, le présent amplificateur de puissance radiofréquence peut être utilisé seulement avec un émetteur avec lequel il a été certifié par Industrie Canada. Le numéro d'identification d'Industrie Canada pour l'émetteur avec lequel l'amplificateur est autorisé à fonctionner est IC : 22303

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (identify the device by certification number, or model number if Category II) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Introduction

Safe-Coms DASAssure™ is a patent-pending fiber Distributed Antenna Systems utilizing an new architecture that addresses the challenges of designing, deploying and maintaining a Public Safety DAS over its life-time. This innovative approach utilizes channel processing that assures the lowest interference and spurious radio communications coverage enhancement available. This modular hot-swap card system permits single channel expansion on ANY frequency adding only the power and resources required. Yet the design is the most compact fiber DAS available – easily fitting 4 bands into a 12x10x6inch NEMA 4 unit. All this with the industries lowest power consumption of 55 watts avg. and 65 watts peak*. This makes the battery backup system the smallest available with 24 hours packed into < 0.5 sq. foot. Safe-Com's high quality manufacturing system and superior applications support assures your success and the public's safety.

This User Manual is specifically written for the
SAFE-1010 "Direct Connect" Head-End
and the
SAFE-1020 remote Unit.

FCC Antenna Requirements

The user must assure that the installation meets FCC RF exposure limits. Minimum distance between any person and the operating antenna must be 14 inches or 35 cm. The antenna must be mounted on a stable, permanent structure.

Maximum ERP is 5 watts per FCC regulations per rule part 90.219(e)(1). The FCC licensed and qualified installer user must calculate the total transmitted power, taking into account the losses of the cables and splitters etc, plus the gain of the antenna to assure compliance with the maximum exposure regulation.

Lightening protection is required on all antennas as loss or damage as a result of lightening is not covered by the warranty. Antennas must be connected prior to turning up power to the unit.

Frequency Bands of Operation and RF output power control

This is a Class B Booster. The authorized bands of use include:

- > 763-774 – 793-805 MHz
- > 806-824 – 851-869 MHz
- > 380-512 MHz
- > 134-174 MHz
- > 896-940 MHz paging bands

The plug-in cards determine the frequency transmitted. The manufacturer factory-sets the operating bands for each plug-in card. The operating bands can not be modified by the user. Consult the manufacturers data sheet and this operating manual to confirm proper operation. RF Output is controlled automatically by an ALC (automatic level control) circuit within the cards. The user can not set the output power to exceed the FCC limits. The user can set the output power lower than the designed maximum using the software supplied by the manufacture.

Startup

The SAFE-1000 series Products operate on 120/220 VAC 50-60 Hz.

Alternate power sources can be specified and include

- > -48 VDC
- > +9VDC
- > +12 VDC

The system must be hardwired to the above power options.

Connect the system to the appropriate power source (120/220VAC or -48 VDC or +9 or +12 VDC).

An AC power source requires 3 connections: Line, Neutral and Ground.

Earth grounding the NEMA case is required.

Terminal screws inside the Head-end and Remote units are provided to connect the power source to the Head-end and Remote Unit.

The system is grounded to case ground terminal internally. The user must assure that the earth ground connection is properly connected to an external earth ground.

Setting up the Head-End