FIBER-SPAN
RF ON FIBER® Technology

FS31X Series
Fiber Optic RF Repeaters
806-941 MHz

RF ON FIBER® Signal Distribution products for In-building coverage extension applications.

Integrated Headend Unit, or remote Optical Repeater

FEATURES:

- Fully Integrated Headend Configuration
- Designed Specifically for Off-Air applications
- RF Power Options: 1/2, 1, 5, 10, 20 Watt
- Low Noise & High Dynamic Range
- RF & Alarm Monitoring over same fiber
- Support for up to 8 Remote Units
- Battery Back-up Options

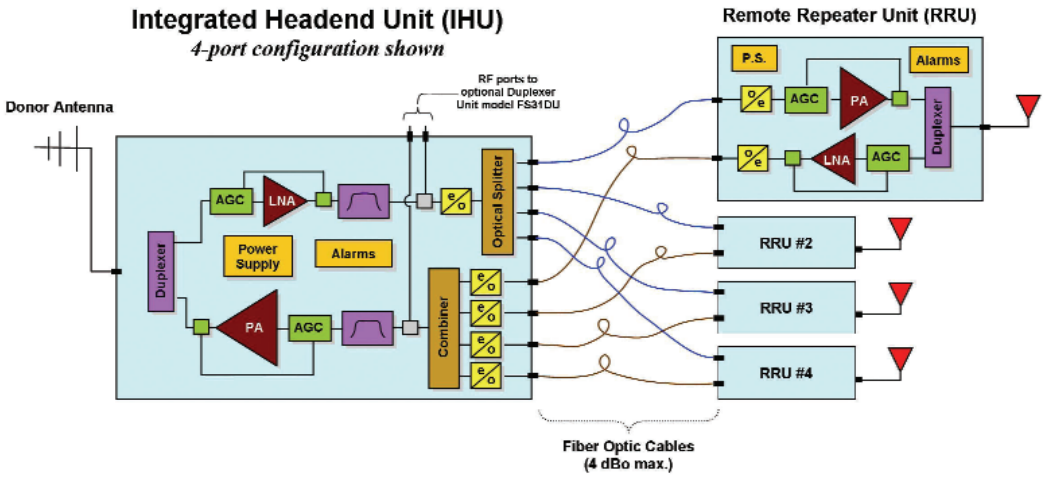
Fiber-Span's FS31X Series is a first of its kind in the industry to fully integrate the traditional Bi-directional Amplifier (BDA), combining/splitting sub-system and fiber optic transceivers all into a single wall-mount enclosure. Fiber-Span's FS31X product line is designed to be the most cost-effective Fiber Optic solution for off-air coverage extension applications. This integrated approach is easy to implement and can be configured to support up to 8 Remote Repeater Units (RRU).

In addition to the fiber optic interface, all FS31X series Headend units feature separate transmit and receive RF ports for compatibility with conventional coaxial cable Distributed Antenna Systems (DAS). A separate FS31DU duplexer unit is available for applications where transmit and receive signals must be duplexed onto a common coaxial cable distribution system.

Each RRU can be configured with a 1/2, 1, 5, 10 or 20 Watt downlink amplifier, giving system designers the flexibility to "size-up" the remote unit for optimum performance over a single antenna distribution system or a network of distributed antennas.

Applications:

- In-building
- Tunnels
- Warehouses
- Parking Garages
- Airports
- Justice Centers
- Manufacturing Facilities
- Stadiums
- Convention Centers
- Universities



RF Specifications

Typical Specs for a 4-port configuration using IHU model: FS31X-85-18-4-WM, and RRU model FS31RS-85-A-18-WM

Frequency Bands	851-869 MHz (downlink)	806-824 MHz (uplink)
Net Link Gain @ 4 dBo optical path loss	72 dB (downlink)	82 dB (uplink)
OIP3	**RRU:** +35 dBm (downlink)	**IHU:** +43 dBm (uplink)
AGC	**IHU:** +20 dB (downlink)	**RRU:** +20 dBm (uplink)
Gain Adjustment (manual)	**RRU** downlink: 10 dB in 1 dB increments	**IHU** uplink: 20 dB in 2 dB increments
Uplink Noise Figure	≤ 10 dB (@ Max. Gain)	
Max. Output Power per 25 KHz FM Channel	**RRU** downlink: +24 dBm, 1 carrier +14 dBm, 4 carriers +19 dBm, 2 carriers +9 dBm, 8 carriers	**IHU** uplink: +30 dBm, 1 carrier +20 dBm, 4 carriers +25 dBm, 2 carriers +15 dBm, 8 carriers
VSWR	<2:1	
Spurious Emission	-13 dBm	

Optical Parameters	
Wavelength	1310 nm
Laser Type	DFB (downlink), FP (uplink)
Max Optical Loss	4 dBo
Fiber Type	Single-Mode 9/125um
Connector Type	FC/APC

Electrical	IHU	RRU
AC Power	50/60 Hz, 115-230 VAC	
Power Consumption	<200 Watts	<50 Watts
Alarms	Dry Contact Relay Alarms	

Environmental	
Operational Temperature Range	-5 to +50 deg C
Humidity	10 to 95 %

Mechanical Specifications

	IHU (Model: FS31X-85-18-4-WM)	RRU (Model: FS31RS-85-A-18-WM)
Dimensions (W x H x D) inches	20 x 16 x 8	8 x 10 x 6
Weight	<80 lbs.	< 40 lbs.
RF Connector Type	N-Female	

ORDERING INFORMATION

IHU- Integrated Headed Unit Number Key: FS31X-GG-BB-J-YY

- **GG — Frequency Sub-band**
  - 85=806-869 MHz
  - 87=824-894 MHz
  - 90=896-941 MHz
- **BB — Bandwidth Selections**
  - 03=3 MHz Passbands (800 MHz SMR)
  - 05=5 MHz Passbands (800 MHz SMR)
  - 06=6 MHz Passbands (900 MHz SMR)
  - 15=15 MHz Passbands (800 MHz SMR)
  - 18=18 MHz Passbands (800 MHz SMR)
  - 25=25 MHz Passbands (Cellular)
- **J — Enclosure Type**
  - RM=Rack Mount Version
  - WM=Wall Mount Version (no NEMA rating)
  - 65=Wall Mount IP65 enclosure type
  - 66=Wall Mount IP66 enclosure type
  - 4X=Wall Mount NEMA 4X enclosure type
  - 40=Wall Mount NEMA 4 enclosure type
- **YY — # of Fiber Optic Ports**
  - 1=1 TX & RX ports
  - 2=2 TX & RX ports
  - 3=3 TX & RX ports
  - 4=4 TX & RX ports
  - 5=5 TX & RX ports
  - 6=6 TX & RX ports
  - 7=7 TX & RX ports
  - 8=8 TX & RX ports

RRU- Remote Repeater Unit Number Key: FS31RS-CC-Z-BB-YY

- **CC — Frequency Sub-band**
  - 85=806-869 MHz
  - 87=824-894 MHz
  - 90=896-941 MHz
- **Z — RF Output Power**
  - A=1/2 Watt Version
  - B=1 Watt Version
  - C=5 Watt Version
  - D=10 Watt Version
  - E=20 Watt Version
- **BB — Bandwidth Selections**
  - 06=6 MHz Passbands (900 MHz SMR)
  - 18=18 MHz Passbands (800 MHz SMR)
  - 25=25 MHz Passbands (Cellular)
- **YY — Enclosure Type**
  - RM=Rack Mount Version
  - WM=Wall Mount Version (no NEMA rating)
  - 65=Wall Mount IP65 enclosure type
  - 66=Wall Mount IP66 enclosure type
  - 4X=Wall Mount NEMA 4X enclosure type
  - 40=Wall Mount NEMA 4 enclosure type

The model numbers and specifications listed above represent the most common system configuration for the 800 MHz SMR+NPSPAC band. Consult the factory to receive specification data for configurations not listed, or to receive an application-specific data sheet.

Laser Warning: Invisible Laser Radiation emitting from optical connector.
Avoid direct exposure to beam. 20 mW max. @ 1300 and 1550 nm. CDRH Class IIIB.

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