FIBER-SPAN
RF ON FIBER® Technology

FS31X Series
Fiber Optic RF Repeaters
1850-1990 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, 5, 20 Watt**
- **Low Noise & High Dynamic Range**
- **RF & Alarm Monitoring over same fiber**
- **Support for up to 8 Remote Units.**
- **Battery Back-up Options**

PCS 5-Watt Version

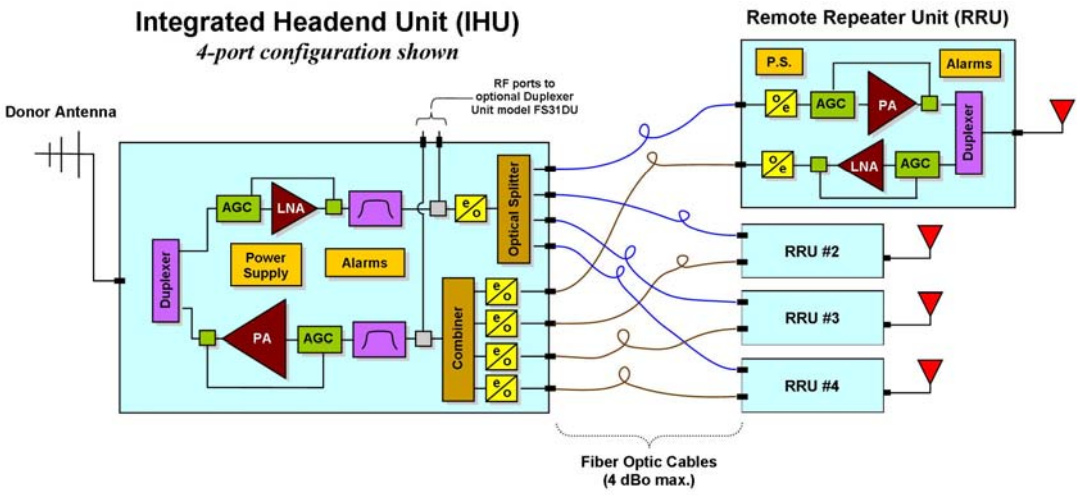
Applications:

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

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, 5, 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.



RF Specifications	Typical Specs for a 4-port configuration using IHU model: FS31X-1.9-60-4-WM, and RRU model FS31RS-1.9-C-60-WM	
Frequency Bands	1930-1990 MHz (downlink)	1850-1910 MHz (uplink)
Net Link Gain @ 4 dBo optical path loss	90 dB (downlink)	90 dB (uplink)
OIP3	**RRU**: +45 dBm (downlink)	**IHU**: +45 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 CDMA Channel	**RRU** Downlink 1 Carrier: +20 dBm 2 Carriers: +15 dBm 4 Carriers: +11 dBm 8 Carriers: +6 dBm	**IHU** Uplink: 1 Carrier: +20 dBm 2 Carriers: +15 dBm 4 Carriers: +11 dBm 8 Carriers: +6 dBm
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	<150Watts	<150 Watts
Alarms	Dry Contact Relay Alarms	

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

Mechanical Specifications	IHU (Model: FS31X-1.9-60-4-WM)	RRU (Model: FS31RS-1.9-C-60-WM)
Dimensions (W x H x D) inches	20 x 16 x 8	20x 16x 8
Weight	<80 lbs.	< 80 lbs.
RF Connector Type	N-Female	N-Female

ORDERING INFORMATION

IHU - Integrated Headend Unit Number Key: **FS31X-1.9-BB-J-YY**

Bandwidth Selections

05 = 5 MHz Passbands
15 = 15 MHz Passbands
60 = 60 MHz Passbands

# 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

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

RRU - Remote Repeater Unit Number Key: **FS31RS-1.9-Z-BB-YY**

RF Output Power

A = 1/2 Watt Version
C = 5 Watt Version
E = 20 Watt Version

Bandwidth Selections

05 = 5 MHz Passbands
15 = 15 MHz Passbands
60 = 60 MHz Passbands

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
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The model numbers and specifications listed above represent the most common system configuration for the PCS 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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