

# FS31R-40C

## Remote Repeater Unit (RRU)

- 380-430 MHz Frequency Range
- 5 Watt Linear Output Power
- Fault-Over-Fiber Feature
- 0.5, 3.0, 5.0 MHz Passbands
- Rack-mount or Wall-mount Options



RF on Fiber® technology offers a new and flexible layer to traditional Distributed Antenna System (DAS) design. Fiber optic cable is not only less expensive to purchase and install than its coaxial counterpart, but it is virtually bandwidth unlimited, making it ideal for multi-service solutions and applications where long runs of coax become cost prohibitive.

Fiber-Span offers a broad range of RF-on-Fiber product to fit most wireless applications. Fiber-Span's FS3100 Series of product is designed to offer a reliable, low cost, and easy to implement solution for in-building, in-tunnel, and outdoor DAS applications.

The FS31R-40C Remote fiber optic Repeater Unit (RRU) is part of Fiber-Span's FS3100 family of products and is designed to deliver up to +37 dBm of base-to-portable output power in the UHF band. It features an integrated high dynamic range fiber optic transceiver, a high gain, low distortion Silicon LDMOS Power Amplifier, and high Q bandpass duplexer. Standard filter options for the RRU include 0.5, 3.0, and 5.0 MHz passbands at 9 or 10 MHz TX to RX channel separations. Consult Fiber-Span Sales for other filter configurations.

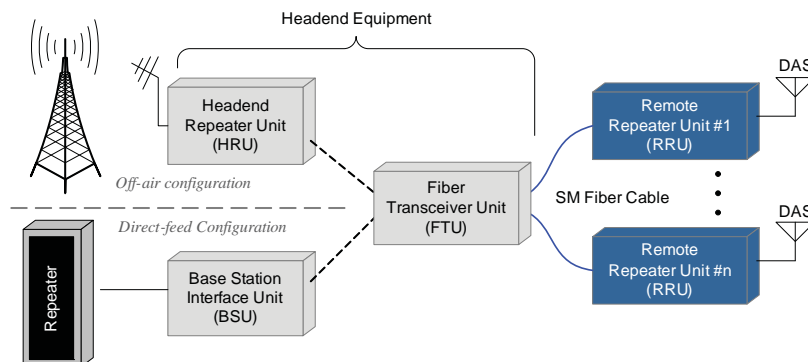
As depicted in the diagram below, a Fiber Transceiver Unit (FTU) is required to perform the RF-to-optical conversion at the headend. The FTU can be

ordered in 1-port, 2-port, or 4-port configurations for supporting up to 4 RRUs. Multiple FTUs can be used to support any number of RRUs. Refer to data sheet DS31F-01 for determining which FTU model number best fits your application. Consult Fiber-Span Sales for assistance in determining whether an HRU or BSU may be required for your application.

All of Fiber-Span's FS3100 series RRUs come standard with a Fault-over-Fiber feature that sends a summary fault condition over the uplink fiber path to the headend Fiber Transceiver Unit (FTU). The summary fault condition appears as a dry contact relay at both the back panel of the FTU, and as a local alarm to the RRU.

### Applications:

- Shopping Malls
- Warehouses
- Parking Garages
- Airports
- Justice Centers
- Manufacturing Facilities
- Stadiums
- Convention Centers
- Universities



*Fiber-Span is a world-leading manufacturer of RF ON FIBER® Communication Network Products for in-building, in-tunnel and outdoor coverage extension systems serving the Commercial Wireless, Public Safety, Government and Military markets.*

Parameter	Downlink	Uplink
Operational Range	380-430 MHz	
Passbands	0.5, 3, 5 MHz	
Minimum TX-to-RX Separation	9 MHz	
System Gain @ 4 dBo optical path loss	+40 dB	+31 dB
Composite Output Power	+37 dBm	+10 dBm
Gain Reduction (manual)	20 dB continuous	n/a
Max. RF Input Level	n/a	+10 dBm no damage
Uplink Noise Figure	< 12 dB at 4dBo	
Wideband Noise (dBm/Hz)	-92 dBm/Hz @ max gain	
Max. RF Output Power (per 25 KHz FM Channel)	1 Carrier: +37 dBm, 2 Carriers: +34 dBm, 4 Carriers: +31 dBm, 8 Carriers: +28 dBm	
Spurious Emission	< -13 dBm	

### Environmental

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

### Fiber Optic Parameters

Wavelength	1310 nm
Laser type	DFB
Max. Optical Budget	Downlink: 4 -10 dBo <sup>1</sup> Uplink: 10 dBo
Fiber Optic Cable Type	Single-Mode 9/125um
Connector Type	SC/APC
Back Reflections	< -50 dB typ.

<sup>1</sup>Downlink fiber optic link budget is dependent on headend FTU configuration.

### Electrical

AC Power	50/60 Hz, 115-230 VAC
Power Consumption	< 150 Watts
Local Alarms Dry Contact Relay:	1. Laser Over Current 2. Opt. Rx 3. PA 4. Temp 5. Auxillary
Remote Alarms - Summary Fault sent to headend FTU over fiber	

### Mechanical Specifications

Dimensions (W x H x D) inches	Wall-mount: 20 x 20 x 9.5 Rack-mount: 19 x 7 x 21
Weight (approx.)	Wall-mount: < 100 lbs. Rack-mount: < 80 lbs.
RF Connector Type	N-Female

### Ordering Information

Identification	Part Number
FS3IR-40C	FS3IR-40C <b>B.BYYX</b>
	Where: <b>B.B</b> = Bandwidth Options (see table)
	<b>YY</b> = Enclosure Type (see table)
	<b>X</b> = W or N (see WDM table)

#### Bandwidth Options

**0.5**=0.5 MHz Passbands  
**3.0**=3 MHz Passbands  
**5.0**=5 MHz Passbands

#### Enclosure Type

**RM**=Rack Mount version      **65**= Wall Mount IP65 enclosure  
**WM**=Wall Mount (indoor rating)      **66**=Wall Mount IP66 enclosure  
**4X**=Wall Mount NEMA 4X enclosure  
**40**=Wall Mount NEMA 4 enclosure

#### WDM - Wavelength Division Multiplexing

**W**=Tx & Rx signals are multiplexed onto a single fiber.  
**N**=Tx & Rx signals are on separate fiber strands.

LITERATURE ORDER CODE: FS3IR-40C-01-0408v2