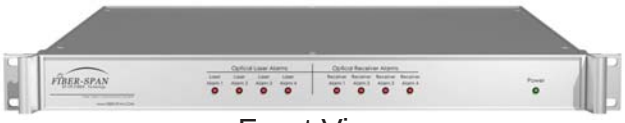
Fiber-Span
RF ON FIBER® EXPERTS FOR 15 YEARS

FS3100 Series Fiber Transceiver Unit
Headend Subsystem

FS31F | 100-2200 MHz Fiber Transceiver Unit (FTU)

- 100-2200 MHz
- High Dynamic Range
- WDM option for Bi-directional Transmission
- Remote Alarm Monitoring Capability
- Short & Medium Range Laser Options



Front View

Rear View

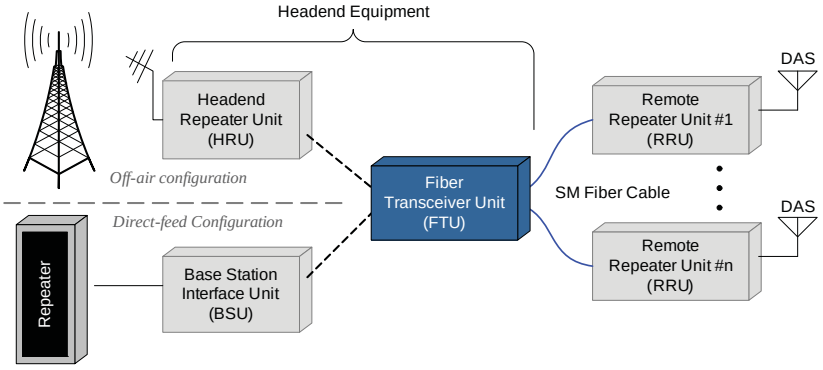
DESCRIPTION

The FS31F is part of Fiber-Span's FS3100 family of products and serves as the headend Fiber Transceiver Unit (FTU) in a fiber optic system link. In the downlink (base-to-portable) path, RF signals are converted to light and sent over single-mode fiber optic cable to a Remote Repeater Unit (RRU) where light gets converted back to RF, amplified, and filtered before being re-radiated. In the uplink (portable-to-base) path, RF signals received by the RRU get filtered, amplified, converted to light and sent to the FTU where the light signal gets converted back to RF. The uplink RF output from the FTU will either be coupled directly into the receive side of the base station repeater, or amplified and sent over the air to a remote donor site.

The FTU can support up to four linear, low noise RF fiber optic transceivers designed for wireless systems and broadband RF applications. Integrated transceiver modules are designed for wide temperature performance and transmission over 9/125 μm single-mode fiber. For optimal stability, the laser incorporates average optical power feedback which monitors and actively adjusts the laser for constant power output over temperature and lifetime. The receiver utilizes a high bandwidth, low distortion InGaAs PIN diode photodetector. The RF section interfaces through 50Ω N-female connectors and the optical connectors are low reflection SC/APC type.

A fault-over-fiber feature comes standard in all FS31F series FTUs. This feature senses a summary fault condition from each RRU and trips the respective dry contact relay on the back panel of the FTU. These fault conditions can be monitored by the Fiber-Span Network Management System (NMS) or any third party monitoring system that supports contact closure interface.

In a typical system configuration, the FTU is collocated with the Base Station or off-air Repeater equipment and requires separate transmit and receive feeds. The use of a Base Station Interface Unit (BSU) may be required for configurations that include multiple FTUs, or that have headend equipment with a duplexed feed. A single FTU can be configured to support 1, 2, or 4 remote fiber optic repeaters. Multiple FTUs can be combined at the headend system to build a scalable solution supporting greater then 64 remote units. For Applications where available fiber is limited, the Wavelength Division Multiplexing (WDM) option combines transmit and receive paths onto a single fiber strand between the FTU and each remote unit. Refer to the Ordering Information section on the next page to configure the FTU for your specific application requirements.



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.

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FS31F | Specifications

Optical Parameters

Operational Frequency Range	100-2200 MHz
Frequency Bandwidth	2100 MHz
Frequency Response over Banwidth	+/- 1.5 dB
Optical Transmit Laser Type	DFB
Wavelength	1310 nm
Optical Receiver	PIN Photodiode
Max. Optical Input to Receiver	+6 dBm (4 mW)
Wideband Noise (dBm/Hz)	-133 dBm
Optical Alarm Threshold	-12 dBo
Fiber Optic Cable Type	Single-Mode 9/125um

Output Optical Power	Short-Range	Medium-Range
1-Port Configuration [2]	n/a	3 dBm
2-Port Configuration	0 dBm	3 dBm
4-Port Configuration	-4 dbm	3 dBm
Optical Budget	**Short-Range**	**Medium-Range**
1-Port Configuration [2]	n/a	10 dBo
2-Port Configuration	7 dBo	10 dBo
4-Port Configuration	4 dBo	10 dBo
Max. Optical Reflections	<-50 dBm	
Optical Configuration	non-WDM or WDM[1]	
Link Gain	0 dB (when tested over 1 meter of fiber)	

[1] WDM feature is available in 1 & 2 port versions only.
[2] 1-Port Configuration is available with Medium Range Laser only.

Alarms

Local	Dry Contact Relay for each Transceiver
Remote Unit Summary Alarms	Dry Contact Relay is for each Remote Unit.

RF Parameters

Port Configurations	1, 2, & 4 Port
Max. RF Input Level to TX Side	+10 dBm Composite
RF Tx to Rx Port Isolation	>60 dB
RF Link Gain (over 1 meter of fiber)	>-10 dB Typical

Input & Output VSWR	2.0:1
Input IP3 (over 1 meter fiber)	+29 dBm
Uplink Noise Figure	≤40 dB (@ 0 dB Gain)

Environmental

Operational Temperature Range: -30 to +75 deg C	Storage Temperature Range: -40 to +85 deg C
Humidity	10 to 95%
Dimensions (W x H x D) inches (mm)	19 x 1.75 x 18 (482 x 45 x 457)
Weight lbs./kg.	<10 lbs. / 4.53 kg.
RF Connector Type	N-Female
Fiber Optic Connector Type	SC/APC
AC Power/ Power Consuption	50/60 Hz, 115- 230 VAC/ <50 Watts

Ordering Information

Identification	Part Number
FS31F	FS31FXY-ZC-M
	Where: X = Laser type: (see table)
	Y = WDM Configuration (see table)
	Z = # of Ports (see table)
	C = Mode (see table)
	M = Mounting Configuration (see table)

Example: FS31FSW-4B-R
Short range Fiber Optic Transceiver with WDM option, 4 bi-directional Fiber optic paths, 19" rack-mount enclosure

Laser Type
S = Short range, 1-4 miles (4dBo max.)
M = Medium range, 4-8 miles (10 dBo max.)

# of Ports
1 = Supports 1 remote unit
2 = Supports 2 remote units
4 = Supports 4 remote units

WDM - Wavelength Division Multiplexing
W=Tx & Rx signals multiplexed onto single fiber strand. (1 fiber strand per Remote unit)
N=Tx & Rx signals on separate fiber strands. (2 fiber strands per Remote unit)

Enclosure Type
R = Rack Mount version
W = Wall Mount (indoor rating)

Mode
T = Transmit Only
R = Receive Only
B = Bi-directional Operation

LITERATURE ORDER CODE: FS31F-01-0408v4

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