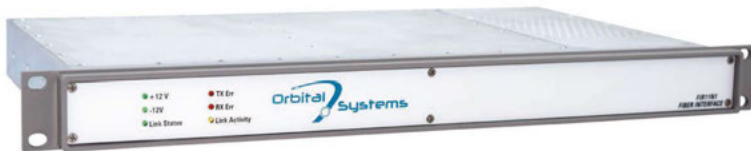


FIR/P-11N1 Fiber Optic Interface

Allows for optical transmission of X, S and L-Band satellite data to and from the antenna

Orbital Systems fiber optic communications option provides a robust data link between the outdoor antenna system and the indoor RF receiver interface. Implementation of the fiber option allows for long distance remote operation of the antenna system without data repeaters. Provides optical transmission of X, S and L-Band satellite downlink data from the antenna system.



FIR-11N1 / Indoor Module
RF and Control Data over Fiber Converter
Front and Rear View



FIR-11N1 / Outdoor
RF Over Fiber Converter

Features

The fiber optic option allows a substantial increase in the range of the antenna positioner installation, as measured from the distance between the antenna system to the inside data capture electronics. Fiber protects the data signal from external electrical interference and provides lightning protection.

Indoor Interface

- Self contained data and RF interface for operating the antenna system over three single mode fibers
- Mount into a 1U rack enclosure or sits on a table top
- RF fiber receiver converts RF optical signal into RF signals covering 10MHz to 3GHz
- Full duplex Ethernet
- SMA connector test port is available for monitoring the RF signals on a spectrum analyzer
- Pair of 2-way splitters provide two RF outputs on SMA female connectors

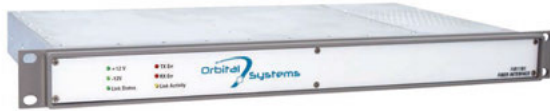
Outdoor Interface

- Allows long distance, remote operation of antenna system, up to 15 km without repeaters
- Fiber optics provide isolation and immunity from ground loops caused by lightning surge
- RF path operates from 10MHz to 3GHz
- Two RF signals are transported from the antenna system across a single RF single mode fiber at 1550nm to the indoor data interface
- RF signal modulates a 1550nm uncooled DFB laser
- Measures Transfer (TX) and Receive (RX) RF signals

Applications:

Implementation of the fiber optic option is used for the following applications:

- Optical transmission of X, S and L-Band satellite downlink data from the remote antenna interface to the indoor RF interface



Indoor Interface RF Specifications

Number of RF Fibers	Single mode fibers, 1550nm 9/125um, APC Connector
Number of Fibers - Receive only (RX)	x1 fiber
Number of Fibers - Transmit and Receive (TX/RX)	x2 fibers
RF Frequency Response	10MHz to 3GHz
RF Output Connector	SMA Female
RF Test Port Connector	SMA Female
RF Output Impedance	50 Ohms
RF Link Gain	Link typically unity gain at 3VDC indicated
RF Link Noise Figure	15dB max at 3VDC indicated
Optical Power Budget	Minimum 5dB

Data Link Specifications

Ethernet Connections	100Base-FX
Ethernet Interface Module	SFP (Small Form Factor Pluggable Transceiver)
Number of Fibers	x2 Transmit/Receive (TX/RX) Data
Optical Wavelength	1310nm 8.3/125um single mode fiber

Power & Physical Specifications

AC Power Input	NEMA power Entry
AC Power	100-240VAC 50/60Hz
Filtering	Power input has internal line filter
Power Consumption	120VAC x .075amps = 9.0 watts
Fuse	x2 2amp fast, 5x20mm
Enclosure Dimensions	1U case, 2"x19"x10.4"
Weight	9.2lbs

Outdoor Interface RF Specifications

RF Input Connector	SMA Female
Input Impedance	50 Ohms
Operating Frequency	10MHz - 3GHz
Noise Figure (>50MHz)	10dB typ, 15dB max
Group Delay	0.2ns peak-to-peak
Return Loss	15dB typical
Phase Noise	-100dBc at 100Hz typical
Normal RF Power Input	-30dBm system dependent
Maximum RF Input	+10dBm w no damage
Optical Wavelength	1550nm +/-10nm single
Optical Power Output	3mW min, 4mW type
Number of RF Fibers	Single mode fibers, 1550nm 8.3/125um, APC connector
Number of Fibers - Receive only (RX)	x1 fiber
Number of Fibers - Transmit and Receive (TX/RX)	x2 fibers
Optical Power Budget	min 5dB

Power & Physical Specifications

DC Power Input	6-pin Micro-fit ODB
DC Power	24VDC @ 300mA
Enclosure Dimensions	10"x5.5"x1.5"
Weight	1.3 lbs
Operating Temperature Range	-40° C to +60° C

