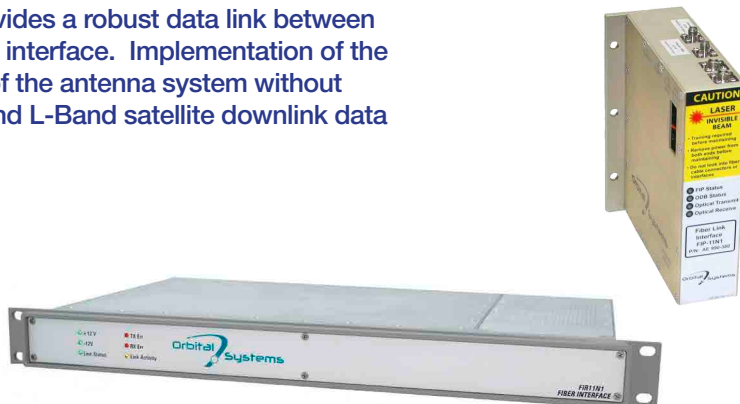




## FIR/P-11N1 Fiber Optic Interface

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

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.



### Standard System 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

# FIR/P-11N1 Fiber Optic Interface

# Specifications



## 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    |

