

RF Over Fibre Systems



Switchable RF Optical Time Delays

RFOptic provides any fixed time delay between 0.1 and 300 μsec (fixed). At special request, $>300 \mu\text{sec}$ can be provided. The ODL is operated as a standalone unit with no need for any intervention by the operator. It can also be controlled externally from a PC through various communication interfaces.

In general, we offer two groups of ODLs:

- 1) Any type of fixed, variable, or mini ODL up to 6GHz with direct modulation (L, S, & C bands)
- 2) Any type of fixed, variable, or mini up to 40 GHz with indirect modulation (X, Ku, & Ka bands).

Options include: 6GHz, 8GHz, 15GHz, 18GHz, 20GHz, and 40GHz. Other options include: Variable ODL, also known as “switched ODL” or “progressive ODL” which supports up to 12 distinct delay lines (when hundreds of delay combinations are needed), Mini Optical Delay Line (a compact desktop module that supports a single delay line of up to 15us), and RFOptic’s ODL 2U Box series for testing and calibrating radar systems or for RF communication.



RF Over Fibre Converters

Analog RF over Fibre modules convert RF signals to optical signals and back. One unit has an optical transmitter which converts the signal from RF to Optical, and a second receiver unit converts the signal from Optical to RF. Both units are connected by the optical fibre of the customer.

RFOptic offers two groups of RFoF modules: low frequency (0.5MHz – 6GHz) and high frequency 8GHz and up to and including 40 GHz) programmable RFoF solutions.

The low frequency programmable RFoF modules (also with SNMP) are based on direct modulation and include 2.5GHz (with optional GPS), 3GHz, 4GHz, 6GHz.

Other options include: Bidirectional (2-way) over Fibre receiver (2.5GHz – 6.0GHz), RFoF multi-link series (0.5 MHz – 6.0 GHz), CWDM 8 channel multiplexer (mux) / demultiplexer (demux) devices, and Bidirectional RFoF Picosecond.

Frequency range of 0.5MHz to 6GHz with excellent flatness, $>40\text{dB}$ gain links, and NF around 5db with LNA On.

Applications include remote antenna, GSM and cellular communications, broadcast, and satellite.

The high frequency RFoF modules are based on indirect modulation and include 8 GHz, 15 GHz, 18 GHz, 20 GHz and 40 GHz.

Frequency range of 10MHz up to and including 40GHz with good flatness

and good phase noise. The NF gain can be improved by adding an amplifier. Parameters such as Gain, P1dB and Noise Figure can be modified upon request.

Applications include remote antenna, EW, radar, and military communications.



2.5GHz RF Over Fibre For GPS

RFOptic presents its new innovative controllable RFoF product line. RFOptic's palm size analog RFoF modules are used to convert RF signals to optical signals to carry over long distances. The Tx unit using an optical transmitter, converts RF to Optical signal and the Rx unit converts back to RF signal. The two units are connected through customer's single mode fibre. RFOptic's RF over Fibre modules (RFoF) are suitable for telecommunications, satellite, radio telescopes, distribution antennas, broadcasting audio and video, timing synchronisation and GPS applications. For example, point-to-point antennas can be connected from several meters to many kilometers away from the control room by fibre cables; Base stations can be connected through fibre to remote sector antennas; Satellite antennas can be connected through fibre cable to remote sites by RF over Fibre solutions.

Features

- Next generation RFoF modules with significant performances improvement.
- Supports up to 2.5GHz for GPS.
- Better linearity, excellent gain flatness, and TX, Rx and Link gain control.
- Noise Figure down to 6 dB with LNA with
- MDS ~168 dB/Hz for very low incoming signals.
- Internal microcontroller allows RF and
- Optical control, enabled by software.
- End-to-end diagnostics reduces installation and maintenance time, enabled by software.
- Gain variation S21 (fo) of ± 1 dB for 90° C variation, utilising special algorithm.
- Remote Management by GUI installed on PC.
- Impedances of 50 Ohms and 75 Ohm.

Applications

- GPS
- Remote Antennas Communication
- Satcom
- 4G LTE
- Broadcast
- Distributed Antenna
- Radio Telescopes

[Data sheet](#)

Manufacturer: RFOptic

Product Code: RFOF-2.5G-GPS

Product SKU: 53839000006941065

Product SKU: RF Over Fibre System, transceiver, programmable, bias-T, 2.5GHz



RFOptic RF Over Fibre Enclosures

- 4 and 8 unit enclosures
- Outdoor waterproof enclosures with 28VDC power supply
- 19" rack mountable enclosures with 110/220VAC power supplies
- Remote management using SNMP/HTML
- 8 channel CWDM mux/demux



High SFDR RF Over Fibre Systems

The MiniQ series addresses the need when a wide range of spurious-free dynamic range (SFDR) is desirable when multiple signals of very different power levels are expected. RFOptic's MiniQ 18GHz, 20GHz, 30GHz, and 40 GHz RFoF solutions provide high SFDR of minimum 112 dB/Hz. Applications include distributed antenna, satcom, radio telescopes, EW, and communications.

RFOptic RF Over Fibre Link Gain Calculator

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