RF Over Fibre System

The FO-TX2 Fibre Optical Transmitter and the FO-RX2 Fibre Optical Receiver are designed to extend radio microphone remote receiving aerials to distances of up to 25km from their associated receivers, allowing receiving antennas to be placed at much greater distances from the receivers than would be possible using any type of coaxial cable. This is of particular benefit to Outside Broadcast Units providing coverage of events spread over large sites for example such as golf courses, horse racing and motor racing circuits. The fibre systems can also be used to combine multiple receiver systems together to act as a RF Backbone for installations in studios and stadiums.

FO-TX2 Fibre Optical Transmitter

The Fibre Optical Transmitter is designed to convert the UHF radio signals from two receiving antenna feeds and transmit the resulting signals down two cores of single mode optical fibre. It is built into a weatherproof 1200 Peli Case and can be powered locally by 240V AC, 12V DC or a Vlock Battery housed inside the Peli Case. A 3/8” Whitworth thread adaptor is provided to allow for flexible mounting solutions.

FO-RX2 Fibre Optical Receiver

The Fibre Optical Receiver converts the resulting signal from the Fibre Optical Transmitter to 2 x RF Outputs. There is visual indication on the unit to display the Power Status and battery level of the Fibre Optical Transmitter as well as indication of the light level received from the individual fibre cores. This is housed in a 19” 1U ½ width enclosure and is designed to be coupled alongside a Sennheiser ASA-1 Active RF Distribution unit or ACA-1 Active RF Combiner for additional distribution of RF signals.

Technical Data

- **Power supply:** AC mains, 90-264V 50/60 Hz
- **13.8V DC – Internal Vlock battery (not included)**
- **Mains power connector:** Powercon
- **12V DC connector:** XLR4 male
- **Power consumption:** DC supply alone, with no antennas, 600mA, AC mains alone, 18W max
- **Frequency range:** 470MHz to 790 MHz
- **RF gain:** 0dB +/- 5dB
- **RF inputs:** Connectors – N type
- **Impedance:** 50 ohms
- **Antenna DC supply:** 12V @ 200mA max each input
- **Fibre connectors:** E2000-APC
- **Dimensions:** (LxWxD) – 260 x 246 x 124 mm approx.
- **Weight (no battery):** 2.77Kg

1The FO-TX does not charge the Vlock battery, it must be removed for charging

Delivery Includes

1 x FO-TX2 Fibre Optical Transmitter – **Cat. No UKFO-TX2**
1 x Neutrik Powercon cable

Technical Data

- **Frequency range:** 470MHz to 790MHz
- **Gain:** 0dB +/- 5dB
- **Connection:** BNC 50 ohms
- **Dimensions:** (WxDxH) – 210mm x 190mm (inc connectors) x 45mm
- **Weight:** approx. 1.37Kg

Delivery Includes

1 x FO-RX2 Fibre Optical Receiver – **Cat No UKFO-RX2**
1 x NT 1-1 power supply
**General Notes**

Ordinarily 50 ohm coaxial cables connect each antenna to centrally located radio receivers. Coaxial cable types must be chosen with care to avoid excessive signal loss (attenuation) between the antennas and the receivers. Boosters may be required on long cable runs. Beyond ~100m length, at best, coaxial cables start to become impractical as well as expensive.

‘RF over fibre’ technology allows UHF signals to be conveyed with minimal signal losses over distances up to several kilometres. In many respects an FOTX and FORX plus two lengths of single mode fibre can be considered to replace two 50 ohm coaxial cables along a given route.

The FOTX provides 12V DC power for active antennas or RF boosters.

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**Example 1: Studio Complex**

The diagram represents a TV studio complex with three studios and a newsroom all sharing the same wireless microphone systems. Four diversity pairs of antennas are deployed, one pair in each of the areas to be covered. Ordinarily 50 ohm coaxial cables connect each antenna to a centrally located ACA 1 combiner which feeds the radio signal from all of the antennas to the radio receivers.

In this example the newsroom is located too far from the central apparatus room where the receivers are housed to be fed antenna signals using conventional coaxial cable. RF over fibre is used in place of the coax cables.

Position and type of antennas in each area must be chosen with care to provide appropriate coverage.