

Fibre



FibreIRS®



FibreMDU



Fibre Distribution

For many years coaxial cable has been the only viable medium available for the distribution of satellite and terrestrial broadcasts to multiple homes from a single antenna/head-end, **UNTIL NOW...**

Global Invacom has designed, developed and manufactured a revolutionary new, fibre optic based distribution system to solve many of the issues encountered in using coaxial based multi home Satellite and Terrestrial systems.

Key Benefits of Using Global Invacom Fibre...

- Only 1 trunk cable vs. 4 or 5 coaxials
- The signals distributed are immune to Electromagnetic Interference
- Only 1 fibre cable required per home - regardless of the number of STBs or tuners
- Signal losses are minimal compared with coaxial - distance is no longer such a constraint
- Simple system design
- No requirement for Earth Bonding of the fibre optic cabling
- Greatly reduced installation time
- No complicated system configuration
- All fibre cables can be pre-terminated if required providing 'plug & play' installation

FibreMDU



The FibreMDU system distributes digital satellite signals to **32** points over a single fibre Passive Optical Network (PON) connected directly to an Optical LNB (FibreMDU LNB). An MDU Optical Converter (Virtual Twin, Virtual Quad or Virtual Gattro) is located at each of the points connected, this converts the signals back to a form that all digital satellite STBs expect to receive. Each end user is able to receive all the services and programming offered by the broadcaster just as if they were connected to their own antenna.

FibreMDU Optical LNB

The innovative Optical LNB uses patented technology to frequency stack horizontal and vertical polarities, creating a single satellite IF frequency range of 950MHz to 5450MHz. This single band is optically frequency modulated and output using a 1310nm laser inside the GI-O'LNB.

- Available for offset (40mm feed horn) or prime focus (Optical LNB-C120) antennae
- Powered by a 12v 'F' connector PSU via standard coaxial cable
- Optical output = 7dBm

FibreMDU Optical Converters

Each of the Optical Convertors have been developed to replicate specific types of traditional LNB (Twin, Quad and Gattro) by converting the optical signal from the FibreMDU Optical LNB back to the satellite IF signal received at the antenna. The signals are output from the Optical Converter via standard 'F' connections, and are ready to be connected directly to STB tuners (Virtual Twin/Quad) or traditional multiswitches (Virtual Gattro).



Virtual Twin

- Single FC/PC optical input
- 2 x Universal LNB outputs
- Powered by the STB

Virtual Quad

- Single FC/PC optical input
- 4 x Universal LNB outputs
- Powered by the STB

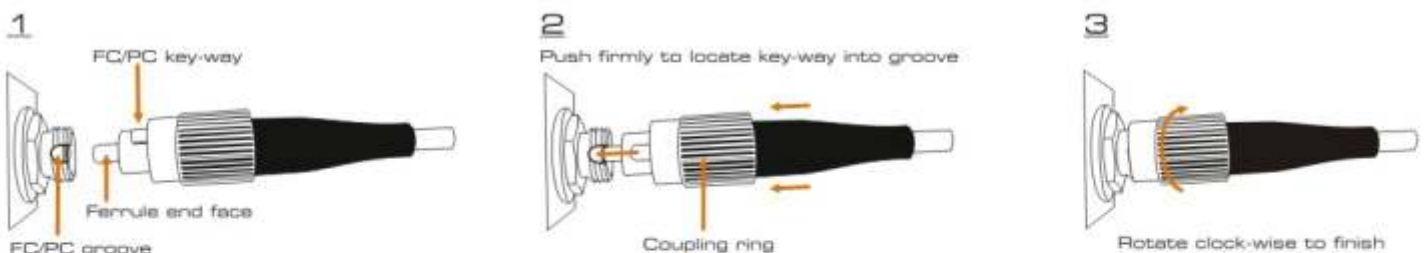
Virtual Gattro

- Single FC/PC optical input
- 4 x fixed polarity LNB outputs (HL, HH, VL, VH)
- Powered by separate mains PSU (included)

Using Fibre Connectors

Important

- It is crucial that all FC/PC connections are made correctly (see below). Failure to do so will result in unwanted attenuation.



- Ensure all ferrule end faces are clean and undamaged (use FibreMDU Cleaning KIT).
- Technical assistance and support is available from Fibre Distributors (or email: fibre@globalinvacom.com)
- Ensure 3.0/5.0 single mode fibre cables are used with all Global Invacom Fibre products (failure to do so may result in system design warranties being invalidated)

FibreIRS®



The FibreIRS® system distributes digital satellite and terrestrial (DTT & DAB) signals from 32 to 256* points (*using PRODU256) over a single fibre PON connected directly to an Optical Transmitter (i.e. **ODU32**). A Gateway Termination Unit (**GTU**) is located at each of the points connected, this converts the signals back to a form that all digital satellite and terrestrial STBs (including DAB tuners) expect to receive. Each end user is able to receive all the services and programming offered by either the satellite or terrestrial broadcaster just as if they were connected to their own antenna.

FibreIRS® **ODU32** Kit

The FibreIRS® **ODU32** Kit includes all of the FibreIRS® equipment, to be situated at the antenna location, required to receive and transmit the digital IRS signal to 64 points (Wholeband LNB, F-IRS**ODU32**, and HF Interconnect Cable).

FibreIRS® **LNBm** Wholeband

The Wholeband LNB uses patented technology to frequency stack horizontal and vertical polarities, creating a single satellite IF frequency range of 950MHz to 5450MHz. This single band is output via an 'N' connector and the 2m HF Interconnect cable (power is supplied to the Wholeband LNB via this connector) for connection to the **ODU32**.

- Available for offset (40mm feed horn) antennae
- Outputs 950MHz to 5450MHz
- 'N' connector

FibreIRS® **ODU32**

Fully weatherproof, the **ODU32** is designed for mounting with the antenna. It accepts and combines signals from the Wholeband LNB and digital terrestrial antennae (DTT/DAB). The combined signal is optically frequency modulated on to a laser inside the **ODU32** and then equally split to 2 optical outputs (FC/PC). Each output of the **ODU32** can feed a PON of 32 points at which any FibreIRS® **GTU** can be connected.

- Fully weatherproof (IP65)
- Optical outputs deliver 2 x 32 PON (2 x 3.5dBm)
- PSU, mast strap and mounting bracket included
- Powers the Wholeband LNB (when connected)

FibreIRS® **HF** Cable

Designed to work at high frequencies, this HF RG58 coaxial cable is used to connect the Wholeband LNB to the **ODU32**. It is fitted with weatherproof 'N' connectors at each end and measures 2m in length.

- 2m length
- 'N' connector
- Conducts power to the Wholeband LNB



FibreIRS® 4way **Wholeband** Active Splitter

Used to equally split the output of a single Wholeband LNB to feed up to 4 x **ODU32**.

- 950MHz - 5450MHz
- Weatherproof

FibreIRS® **PRODU256**



The **PRODU256** is a professionally built 256 point FibreIRS® headend enclosed within a high grade, lockable, wall mounting IP65 cabinet, providing an incredibly efficient solution for larger F-IRS distribution systems. A mains PSU fitted with an 'F' connector powers the 4 x **ODU32** and a 4way Wholeband Active Splitter contained within the **PRODU256** (the connected Wholeband LNB is powered from here).

FibreIRS® **GTU**



Each of the FibreIRS® **GTUs** have been developed to replicate specific types of traditional LNB (Quad & Quatro) both provide a separate combined DTT/DAB output. The **GTU** converts the optical signal from an **ODU32** back to the original type of satellite IF and DTT/DAB signals input. They are then output from the **GTU** via standard 'F' connections, and are ready to be connected directly to digital satellite, DTT & DAB tuners (Quad **GTU**), or traditional multiswitches (Quatro **GTU**).

FibreIRS® Quad **GTU**

- Single FC/PC optical input
- 4 x Universal LNB + 1 x DTT/DAB outputs
- Powered by separate mains PSU (included)

FibreIRS® Quatro **GTU**

- Single FC/PC optical input
- 4 x fixed polarity LNB (HL, HH, VL, VH) + 1 x DTT/DAB outputs
- Powered by separate mains PSU (included)

FibreIRS® DTT **GTU**

- Single FC/PC optical input
- 1 x DTT/DAB output
- Powered by separate mains PSU (included)

Fibre **Support Products**

Fibre **CABLE**

3.0 Steel Armoured Fibre Optic Cables



The 0.9 micron G657a Single Mode fibre used in 3.0 is protected by tight fitting PVC buffer, flexible steel tape (1mm width, 0.18mm thickness), and Kevlar tension resisting thread layers. Encased in a grey, UV stable, Low Smoke Zero Halogen (LSZH) PVC outer jacket it offers protection against the elements. 3.0 is available in many lengths (1m to 500m), pre-terminated (FC/PC) or un-terminated. All of these features make the 3.0 the most flexible, damage resistant fibre cable available to the satellite and aerial industry.

- Single Mode, G657A fibre optic cable
- Bend and impact resistant
- 3mm diameter LSZH UV stable outer jacket

5.0 Direct Access Fibre Optic Cables



For use in installations where cabling is to be routed underground via ducting or direct burial. 5.0 contains 2 x 0.9 micron G657a Single Mode fibres. The fibre cores are protected by a tight fitting PVC buffer, Kevlar tension resisting thread layers and are encased in a gel filled polypropylene outer sheath offering protection against the elements. 5.0 has a high crush resistance and tensile strength.

- 2 x Single Mode, G657A fibre optic cable
- Crush resistant
- Lightweight, 5.9mm diameter outer sheath

Fibre**ROD**



A multi purpose cable routing system for use with 3.0/5.0 fibre and most coaxial type cables. The unique FC/PC adaptors included (x2) enable the Fibre Rods to connect directly to 3.0/5.0.

- 6 metres of rod included (3 flexibilities)
- Wire pulling sock and 2 x FC/PC adaptors included

Connectors/**Attenuators**



Barrel Connector

Used for joining 2 pre-terminated 3.0/5.0 patch cables together or connecting a patch cable to Compact Optical Splitters.

- FC/PC

Optical Attenuators

Designed to attenuate the optical signal generated by the Fibre**MDU** and Fibre**IRS**® systems by a fixed level. Optical Attenuators are passive, FC/PC in-line devices.

- FC/PC
- Available in 5, 10, 15 and 20dB versions

OT2 Optical Terminator



Used for terminating unused female FC/PC outputs of our Fibre products.

- FC/PC

Fibre **SPLITTERS**

Compact Optical Splitters



Used in the fibre optic industry for many years, these splitters are designed to equally divide the optical signal generated by the Fibre**MDU** and Fibre**IRS**® systems. Compact Optical Splitters are passive, Dual Window (1310 & 1550nm) and low loss.

- 1m FC/PC pigtail connections
- Compact
- Available in 2, 3, 4 & 8 way versions

PRO Optical Splitters



Specifically designed for the satellite and aerial industry, this new splitter allows the installer to connect directly to it, rather than barrel connect to a pigtail. Also, designed to equally divide the optical signal generated by the Fibre**MDU** and Fibre**IRS**® systems. PRO Optical Splitters are passive, Dual Window (1310 & 1550nm) and low loss.

- Direct FC/PC connections
- Available in 2, 3, 4 & 8 way versions

Fibre Support Products

OptiScan



OptiScan is a unique, high quality, compact optical power and RF satellite meter. It is the only GI approved meter capable of real time viewing of the low band spectrum signals either optically or satellite IF produced by the GI- O'LNB and FibreIRS® ODU32.

- For use in Optical (low band) or RF based Satellite distribution installations
- Measure Optical power in (dBm) while viewing the spectrum
- View Satellite band in real-time
- Transponder identity and position read directly from the Satellite
- SNR and BER levels displayed at the touch of a button
- Favourites function available, no need for timely computer downloads
- Fast setting of motorised dishes and switches (DISEqC)

FibreLIGHT



The GI-FibreLight is an easy to use, hand-held, visible source used for testing fibre optic cable installations. The unit is pocket sized with a long battery life, making it ideal for local fault finding and continuity checking of fibres.

- 650nm high power LD light source
- Universal 2.5mm connector

FibreSCOPE



This hand held connector inspection fibre microscope provides coaxial illumination from a white light LED. The FibreScope is used to inspect the ferrule end face of fibre connectors for defects such as scratches and contamination.

- Laser safety filters built in for maximum safety
- Recommended for single mode applications
- 100x - 400x Optical Zoom
- Smooth focus control

FibreMDU Cleaning KIT

FibreCLEANCORE



The Fibre CleanCore is the ideal aid for cleaning the ferrule end face of fibre connectors. Supplied with a removable cassette containing the fabric which supports 400 cleaning cycles (replacement cassettes can be purchased and installed). The cleaning fabric has a super fine cross woven weave, which permits dry cleaning of fibre optic connectors.

- Compact size for easy hand-held operation

FibreWIPES



An excellent cost effective solution for cleaning the ferrule end face of fibre connectors. Ideal for use on the bench or in the field, dry or solvent wet.

- Compact size for easy hand-held operation
- Used in conjunction with Solvent Pen

FibreCLEANSE



The Solvent Pen effectively and efficiently removes handling soils, dust, oils, greases and contamination found in the fibre optic environment

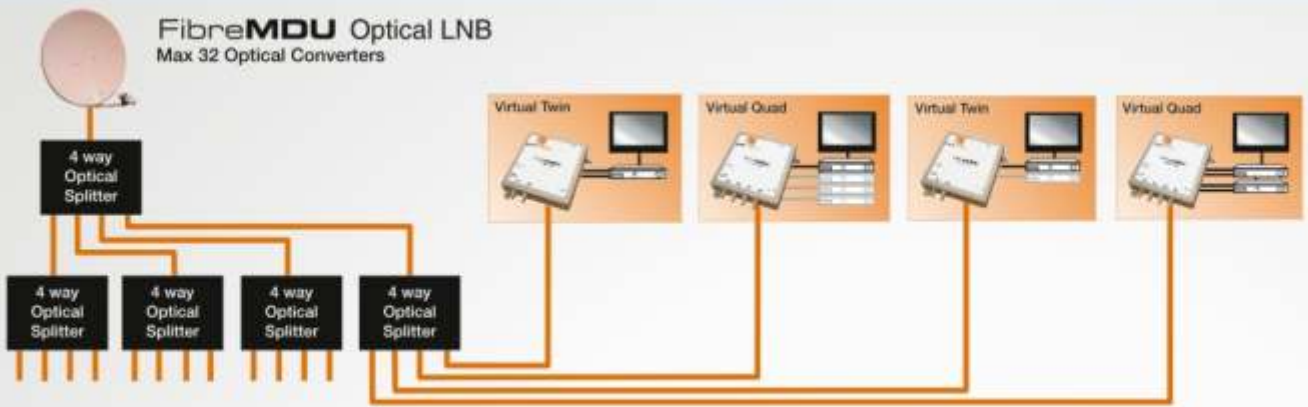
- Pinpoint controlled dispensing of cleaning solution
- Used in conjunction with Cleaning Cube

FibreSWAB

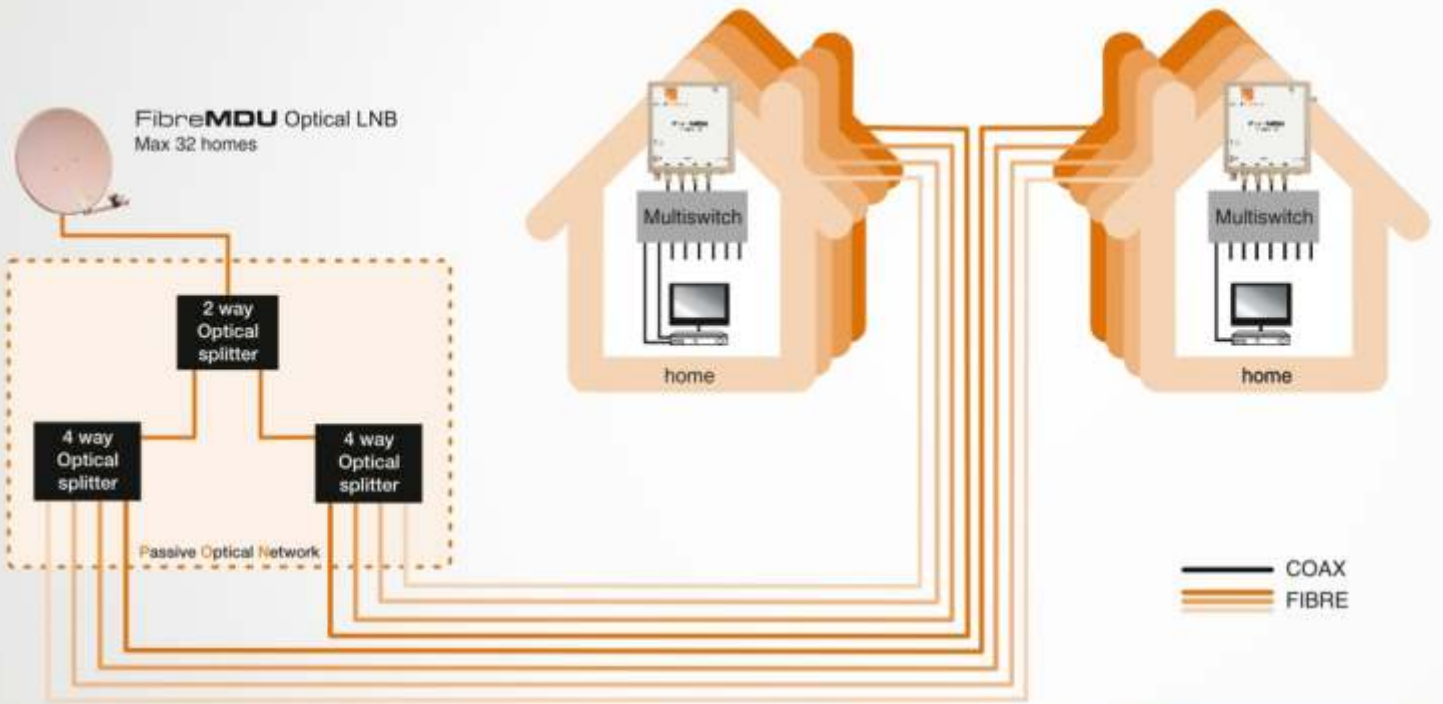


Used to remove soils, dust, oils, greases and contamination found in the fibre optic environment from female FC/PC connections.

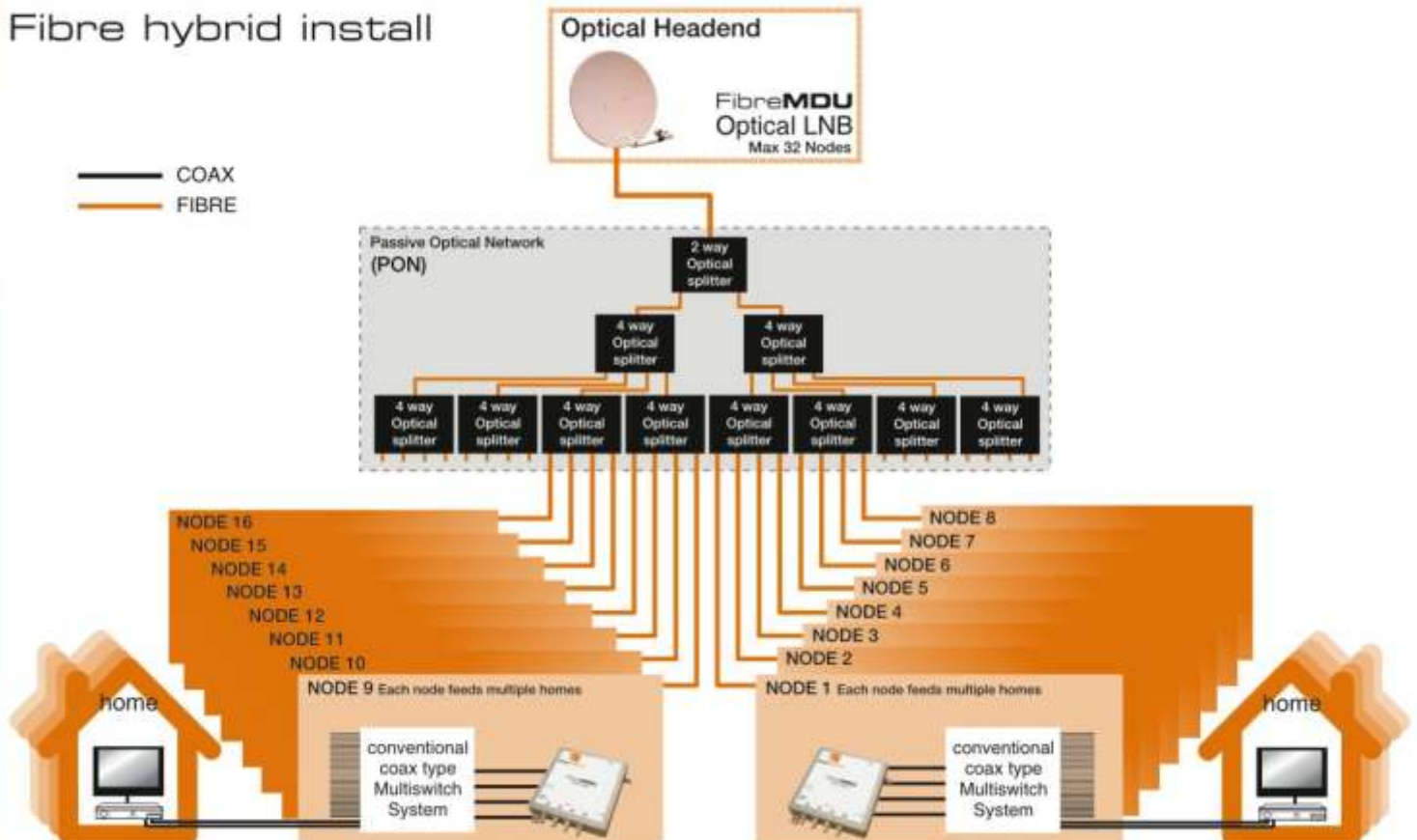
- 2.5mm Flexible swab head conforms to connector face
- No adhesives, binders, or fibres to leave residues



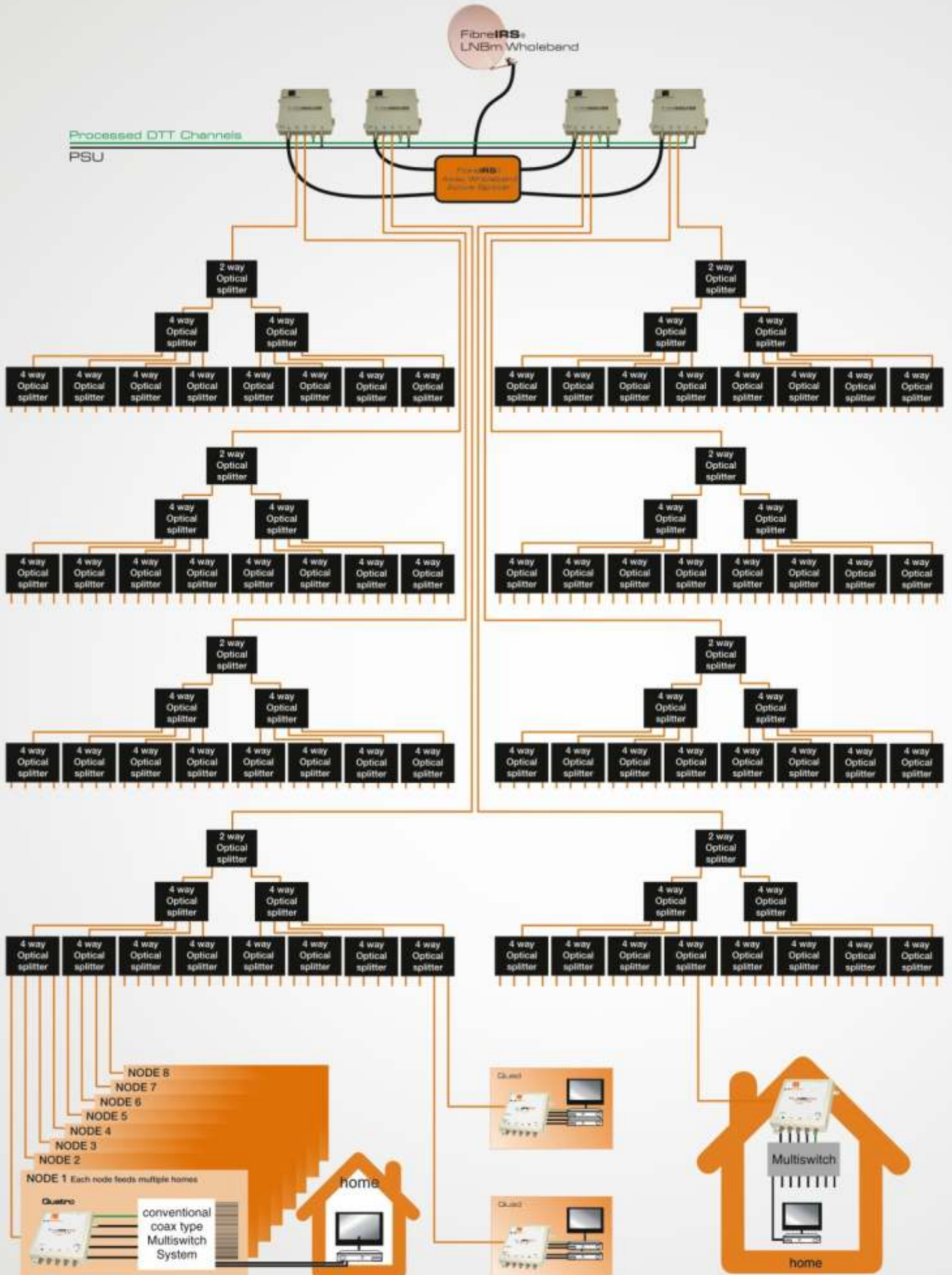
Fibre to the home



Fibre hybrid install



FibreIRS® 256 Point Distribution



Product Specifications

Fibre**MDU** Optical LNB

- Input Frequency Range: 10.7-12.75GHz linear polarisation
- Output Frequency Range: 0.95-5.45GHz via modulated laser
- Optical Output Power: 7dBm nominal @ 25°C (via FC/PC connector)
- Current Consumption: <450mA
- Nominal Supply Voltage: 12V (via 'F' connector)

Fibre**MDU** Optical Convertors

- Input Frequency Range: 0.95-5.45GHz (modulated optical signal)
- Output Frequency Range: 950-1950MHz Horizontal Low Band
950-1950MHz Vertical Low Band
1100-2150MHz Horizontal High Band
1100-2150MHz Vertical High Band
- Current Consumption: <300mA (Virtual Twin & Quad powered by connected STB)
- Nominal Supply Voltage: 20V (Virtual Gastro only)

Fibre**IRS** LNBm Wholeband

- Input Frequency Range: 10.7-12.75GHz linear polarisation
- Output Frequency Range: 0.95-5.45GHz
- Current Consumption: <350mA
- Nominal Supply Voltage: 6V (via 'N' connector)

Fibre**IRS** ODU32

Satellite

- Input Frequency Range: 0.95-3.0GHz Vertical Polarisation
3.4-5.45GHz Horizontal Polarisation
- Output Frequency Range: 0.95-5.45GHz via modulated laser
- Optical Output Power: 3.5dBm typical

DTT/DAB

- Input Frequency Range: 217-230MHz (DAB)
470-854MHz (DTT)
- Output Frequency Range: 217-854MHz via modulated laser
- Optical Output Power: 3.5dBm typical

DC Specification

- PSU Voltage: 12V
- LNB Supply Voltage: 6V
- Current Consumption: <500mA (including Wholeband LNB)

Connectors

- Outputs: FC/PC
- Satellite Input: 'N' connector
- DTT/DAB Input: 'F' connector
- PSU: 'F' connector

Fibre**IRS** GTU

- Input Frequency Range: 217-5450MHz (modulated optical signal)
- Output Frequency Range: 217-230MHz (DAB)
470-854MHz (DTT)
950-1950MHz Horizontal Low Band
950-1950MHz Vertical Low Band
1100-2150MHz Horizontal High Band
1100-2150MHz Vertical High Band
- Satellite Transponder Level: 72dB μ V typical
- DAB Multiplex Level: 79dB μ V typical
- DTT Multiplex Level: 65dB μ V typical
- Current Consumption: <800mA
- Nominal Supply Voltage: 6V