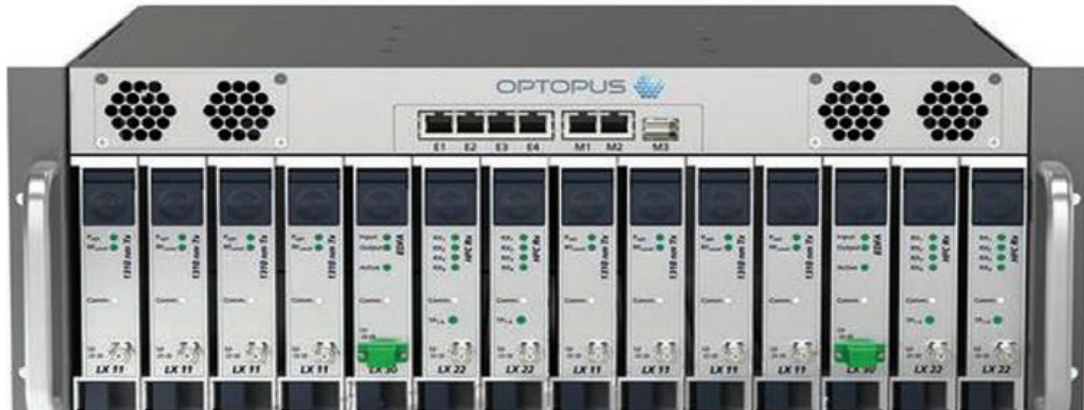


**Systems for Large Buildings or Large Cities, easily distribute more than 1000 TV Channels ,down a single fibre, then local distribution via a single coax . (Simplex mode)**

<b>Basic Unit LX 50 0230</b>	<b>Rack housing for 14 modules</b>
Operating voltage AC	230 V (50/60 Hz)
Full web interface with GUI and SNMP.	<b>£1,443.27</b>
<b>Basic Unit LX 50 048</b>	<b>Rack housing for 14 modules</b>
Operating voltage DC	48 V DC
Full web interface with GUI and SNMP.	<b>£1,509.70</b>



Modules shown fitted into rack ,are not included in price.

<b>Basic Unit LX 52</b>	<b>Rack housing for 2 modules £400.90 (psu required see below)</b>
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Modules shown fitted into rack ,are not included in price.

## Technical data

Switch/Controller

Protocols

IPv4, SNMPv1/v2c, DHCP, HTTP

## Connections

Module slots

14 pcs.

RJ45

4 pcs. (Ethernet 10/100 Base-T)

SFP socket

1 pcs. (Ethernet 1000 Base-X)

For redundant power supply use two PSU's

<b>LXPS 0230</b>	<b>230V PSU</b>	<b>180...265 V AC</b>	<b>£286.36</b>
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LXPS power supply , choose voltage type to suite

<b>LXPS 0048</b>	<b>48V PSU</b>	<b>45-75 V DC</b>	<b>£400.90</b>
------------------	----------------	-------------------	----------------



## General data

Power input

≤25 W

Dimensions (width x height x depth)

48x178x330 mm (4 HE, 19"-rack)

Environmental parameters

-5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2)

**LX 11 S**
**1310nm Laser Transmitters**
**Output Powers**
**6-13dBm**
**Wavelength 1310 nm ( $\pm 10$  nm)**
**Fibre Connections SC/APC**

Optical HFC transmitter for use in LX 50

Adjustable OMI

Automatic level control (ALC)

Electronic predistortion

Fullband transmitter 10...1006 MHz

SBS suppression

 Direct modulated fullband transmitter with  
1310 nm for use in HFC networks

**LX 11 S 0600**
**Optical output power 6 dBm (4 mW)**
**£1,254.27**
**LX 11 S 0800**
**Optical output power 8 dBm (6 mW)**
**£1,363.09**
**LX 11 S 1000**
**Optical output power 10 dBm (10 mW)**
**£1,592.18**
**LX 11 S 1300**
**Optical output power 13 dBm (20 mW)**
**£2,106.49**
**1310 nm transmitter**
**Technical data**

Downstream

Laser type

Wavelength transmitter 1

Frequency range

Optical return loss

Input level broadcast

Input level Narrowcast

Narrowcast gain/level adjustment

Inputs AGC

Decoupling NC BC

Electrical reflection loss

Ripple

Relative Intensity Noise 1

CSO

CTB

Input measurement socket

Connections

F-socket

General data

Power input

Dimensions (width x height x depth)

environmental parameters

Temperature stabilized DFB laser

 1310 nm ( $\pm 10$  nm)

10...1006 MHz

&gt;40 dB

 78 dB $\mu$ V (PAL-Level)

 84 dB $\mu$ V (QAM-Level, 4 dB back off)

 $\pm 2$  dB (adjustable)

 $\pm 5$  dB

 $\geq 50$  dB

 $\geq 20$  dB (-1 dB /oct., min. 17 dB)

 $\leq \pm 0,5$  dB

 < -155 dB $\sqrt{\text{Hz}}$ 
 $\geq 63$  dBc (42 channels CENELEC)

 $\geq 65$  dBc (42 channels CENELEC)

-20 dB (BC-Input level)

1 pcs.

 $\leq 7$  W

30x133x320 mm

-5...+45 °C (ETSI EN 300 019-1-3 Class 3.2)

**LX 11 S 100 range**
**O-Band Transmitter**
**Output power, 10 dBm (10 mW)**
**Wavelengths**
**1,1330.46 - 1,1325.78 nm ( $\pm 0,05$  nm)**
**Fibre Connections SC/APC**

Optical HFC transmitter for use in LX 50

Adjustable OMI

Automatic level control (ALC)

Electronic predistortion

Fullband transmitter 10...1006 MHz

SBS suppression

O-Band wavelength

Direct modulated fullband transmitter with

one O-Band wavelength for use in

HFC network cluster splitting applications


**LX 11 S 1001**
**Wavelength 1,1330.46 nm ( $\pm 0,05$  nm)**
**£1,706.73**
**LX 11 S 1002**
**Wavelength 1,1327.25 nm ( $\pm 0,05$  nm)**
**£1,706.73**
**LX 11 S 1003**
**Wavelength 1,1329.22 nm ( $\pm 0,05$  nm)**
**£1,706.73**
**LX 11 S 1004**
**Wavelength 1,1325.78 nm ( $\pm 0,05$  nm)**
**£1,706.73**
**O-Band Transmitter**
**Technical data**

Downstream

Laser type

Optical output power

Frequency range

Optical return loss

Input level broadcast

Input level Narrowcast

Narrowcast gain/level adjustment

Inputs AGC

Decoupling NC BC

Electrical reflection loss

Ripple

Relative Intensity Noise 1

CSO

CTB

Input measurement socket

Connections

F-socket

General data

Power input

Dimensions (width x height x depth)

environmental parameters

Temperature stabilized DFB laser

10 dBm (10 mW)

10...1006 MHz

&gt;40 dB

 78 dB $\mu$ V (PAL-Level)

 84 dB $\mu$ V (QAM-Level, 4 dB back off)

 $\pm 2$  dB (adjustable)

 $\pm 5$  dB

 $\geq 50$  dB

 $\geq 20$  dB (-1 dB /oct., min. 17 dB)

 $\leq \pm 0,5$  dB

&lt; -155 dB/Hz

 $\geq 63$  dBc (42 channels CENELEC)

 $\geq 65$  dBc (42 channels CENELEC)

-20 dB (BC-Input level)

1 pcs.

 $\leq 7$  W

30x133x320 mm

-5...+45 °C (ETSI EN 300 019-1-3 Class 3.2)

**LX 12 S Range**
**Output powers 2 x ,3-6 dBm**
**Wavelength 1310 nm ( $\pm 10$  nm)**
**Fibre Connections SC/APC**

Dual optical HFC transmitter for use in LX 50

Adjustable OMI

Automatic level control (ALC)

Fullband transmitter 10...1006 MHz

Adjustable Narrowcast-Input

 Dual direct modulated fullband transmitter  
with 2x 1310 nm for use in HFC networks

**LX 12 S 0300**
**Optical output power, 3 dBm (2 mW)**
**£1,174.10**
**LX 12 S 0600**
**Optical output power, 6 dBm (4 mW)**
**£1,757.13**
**2x 1310 nm transmitter**
**Technical data**

Downstream

Laser type

Wavelength transmitter 1

Frequency range

Optical return loss

Input level broadcast

Input level Narrowcast

Narrowcast gain/level adjustment

Inputs AGC

Decoupling NC BC

Electrical reflection loss

Ripple

Relative Intensity Noise 1

CSO

CTB

Input measurement socket

Connections

F-socket

General data

Power input

Dimensions (width x height x depth)

environmental parameters

Uncooled isolated DFB laser

 1310 nm ( $\pm 10$  nm)

10...1006 MHz

&gt;40 dB

 78 dB $\mu$ V (PAL-Level)

 84 dB $\mu$ V (QAM-Level, 4 dB back off)

 $\pm 2$  dB (adjustable)

 $\pm 5$  dB

 $\geq 50$  dB

 $\geq 20$  dB (-1 dB /oct., min. 17 dB)

 $\leq \pm 0,75$  dB

 < -150 dB $\sqrt{\text{Hz}}$ 
 $\geq 60$  dBc (42 channels CENELEC)

 $\geq 65$  dBc (42 channels CENELEC)

-20 dB (BC-Input level)

1 pcs.

 $\leq 12$  W

30x133x320 mm

-5...+45 °C (ETSI EN 300 019-1-3 Class 3.2)

### LX 13 S Range

### CWDM Up Stream Transmitter

#### Output Powers

2 x 3-5dBm

Wavelength 1511/1531 nm & 1471/1491 nm

#### Fibre Connections SC/APC

CWDM Up Stream Transmitter

High Density Dual CWDM-Transmitter

Two CWDM transmitter in one module

Highest performance with dual-stage isolator

Adjustable OMI

Dual CWDM upstream transmitter with two adjacent CWDM wavelengths for use in return path applications in HFC networks.



#### LX 13 S 0512

Optical output power, 5 dBm (3,16 mW)

Wavelength 1471/1491 nm

£1,626.55

#### LX 13 S 0534

Optical output power, 2x 5 dBm (3,16 mW)

Wavelength 1511/1531 nm

£1,626.55

#### LX 13 S 0556

Optical output power, 2x 5 dBm (3,16 mW)

Wavelength 1551/1571 nm

£1,626.55

#### LX 13 S 0578

Optical output power, 2x 5 dBm (3,16 mW)

Wavelength 1591/1611 nm

### CWDM Up Stream Transmitter

#### Technical data

Downstream

Laser type

Uncooled isolated DFB laser

Wavelength transmitter 1

1511/1531 nm

Frequency range

5...500 MHz

Optical return loss

>40 dB

Input level broadcast

78 dBμV (Low-Level-Input)

Input level Narrowcast

88 dBμV (High-Level-Input)

Narrowcast gain/level adjustment

±2 dB (adjustable)

Inputs AGC

±5 dB

Decoupling NC BC

≥50 dB

Electrical reflection loss

≥20 dB

Ripple

≤ ±0,75 dB

Relative Intensity Noise 1

< -145 dB/Hz

Input measurement socket

-20/-30 dB (Low-Level-/High-Level-Input)

OMI setting range

3...10 %

Dynamic range by 40 dB NPR

≥10 dB

Connections

F-socket

1 pcs.

General data

Power input

≤10,5 W

Dimensions (width x height x depth)

30x133x320 mm

Environmental parameters

-5...+45 °C (ETSI EN 300 019-1-3 Class 3.2)

## LX 15 S Range

### Output Powers

**1 x 10 dBm (10 mW)**

**Wavelength 1555 nm ( $\pm 10$  nm)**

**SBS suppression, 16 dBm & 21dBm**

### Fibre Connections SC/APC

Optical transmitter for use in Chassis LX50

Adjustable OMI

Automatic level control (ALC)

Electronic predistortion

SBS suppression

Dispersion compensation

The LX 15 is part of the Optopus

product portfolio. LX 15 is a direct modulated

fullband transmitter with 1550 nm for use in

RF Overlay and RFoG networks.



## LX 15 S 1000

SBS suppression, 16 dBm

**£2,755.96**

## LX 15 S 1001

SBS suppression, 21dBm

**£2,755.96**

### 1550 nm BC-transmitter

#### Technical data

Downstream

Laser type

Wavelength transmitter 1

Optical output power

Frequency range

Optical return loss

Input level broadcast

Input level Narrowcast

Narrowcast gain/level adjustment

Inputs AGC

Decoupling NC BC

Electrical reflection loss

Ripple

Relative Intensity Noise 1

CSO

CTB

transmission length

Input measurement socket

Connections

F-socket

General data

Power input

Dimensions (width x height x depth)

Environmental parameters

Temperature stabilized DFB laser

1555 nm ( $\pm 10$  nm)

10 dBm (10 mW)

10...1006 MHz

>40 dB

78 dB $\mu$ V (PAL-Level)

84 dB $\mu$ V (QAM-Level, 4 dB back off)

$\pm 2$  dB (adjustable)

$\pm 5$  dB

$\geq 50$  dB

$\geq 20$  dB (-1 dB /oct., min. 17 dB)

$\leq \pm 0,5$  dB

< -155 dB $\sqrt{\text{Hz}}$

$\geq 60$  dBc (42 channels CENELEC)

$\geq 65$  dBc (42 channels CENELEC)

25 km

-20 dB (BC-Input level)

1 pcs.

$\leq 7$  W

30x133x320 mm

-5...+45 °C (ETSI EN 300 019-1-3 Class 3.2)

### LX 17 S Range

#### Output Power

1 x10 dBm (10 mW)

DWDM Transmitter, ITU-channels

Fibre Connections SC/APC

Optical transmitter for use in Chassis LX50

Adjustable OMI/Auto OMI

Electronic predistortion

SBS suppression

Dispersion compensation

LX 17 is a DWDM transmitter with an ITU-specific wavelength for use in HFC broadcast/narrowcast applications.



<b>LX 17 S 1030</b>	<b>Wavelength transmitter 1553.33 nm (ITU-Kanal: 30)</b>	<b>£1,969.04</b>
<b>LX 17 S 1031</b>	<b>Wavelength transmitter 1552.52 nm (ITU-Kanal: 31)</b>	<b>£1,969.04</b>
<b>LX 17 S 1032</b>	<b>Wavelength transmitter 1551.72 nm (ITU-Kanal: 32)</b>	<b>£1,969.04</b>
<b>LX 17 S 1033</b>	<b>Wavelength transmitter 1550.92 nm (ITU-Kanal: 33)</b>	<b>£1,969.04</b>
<b>LX 17 S 1034</b>	<b>Wavelength transmitter 1550.12 nm (ITU-Kanal: 34)</b>	<b>£1,969.04</b>
<b>LX 17 S 1035</b>	<b>Wavelength transmitter 1549.32 nm (ITU-Kanal: 35)</b>	<b>£1,969.04</b>
<b>LX 17 S 1036</b>	<b>Wavelength transmitter 1548.32 nm (ITU-Kanal: 36)</b>	<b>£1,969.04</b>
<b>LX 17 S 1037</b>	<b>Wavelength transmitter 1547.72 nm (ITU-Kanal: 37)</b>	<b>£1,969.04</b>

DWDM Transmitter, ITU-channels

#### Technical data

Downstream

Laser type

Optical output power

Frequency range

Optical return loss

Input level broadcast

Input level Narrowcast

Decoupling NC BC

Electrical reflection loss

Relative Intensity Noise 1

Input measurement socket

OMI setting range

Dynamic range by 40 dB NPR

MER

BER

Connections

F-socket

General data

Power input

Dimensions (width x height x depth)

Environmental parameters

Temperature stabilized DFB laser

10 dBm (10 mW)

10...1006 MHz

>40 dB

78 dBμV (PAL-Level)

84 dBμV (QAM-Level, 4 dB back off)

≥50 dB

≥20 dB (-1 dB /oct., min. 17 dB)

< -155 dB/Hz

-20/-30 dB (Low-Level-/High-Level-Input)

4...12 %

≥10 dB

≥44 dB

≤10<sup>-9</sup>

1 pcs.

≤7 W

30x133x320 mm

-5...+45 °C (ETSI EN 300 019-1-3 Class 3.2)

### LX 30 Range

Optical amplifier ,1530 -1565 nm, can be used as a repeater and split and amplify. to extend system reach to very large systems

Fibre Connections SC/APC

Amplification of optical signls in the C-band

Optical amplifier for use in Chassis LX 50

Up to four output ports with adjustable output power

Optical test port for the output signal

Wide input power range enables application as booster or inline-amplifier

Low electrical power consumption



<b>LX 30 S 1401</b>	Optical output power, 1 x 14 dBm	<b>£2,703.27</b>
<b>LX 30 S 1402</b>	Optical output power, 2 x 14 dBm	<b>£2,988.49</b>
<b>LX 30 S 1701</b>	Optical output power, 1 x 17 dBm	<b>£2,749.09</b>
<b>LX 30 S 1702</b>	Optical output power, 2 x 17 dBm	<b>£3642.55</b>
<b>LX 30 S 1704</b>	Optical output power, 4 x 17 dBm	<b>£5,383.64</b>
<b>LX 30 S 2101</b>	Optical output power, 1 x 21 dBm	<b>£3,545.18</b>
<b>LX 30 S 2102</b>	Optical output power, 2 x 21 dBm	<b>£4,999.90</b>

### Technical data

Amplifier inputs	1 pcs.
Optical input power	-2...+10 dBm
Output level tolerance	polarization, wavelength range and
Output level variation	±0,5 dB
Wave length	1530...1565 nm
Setting range amplifier	5 dB (0,1 dB-steps)
Noise fugure	output power and signal wave length 1550
Return loss	≥45 dB (input - output)
Decoupling	≥40 dB (output - input)
Optical test point output	-2.5 dB (in relation to EDFA-output power)
Connections	
SC/APC socket	1 pcs.
General data	
Power input	typ. 5 W, max. 10 W
Dimensions (width x height x depth)	30x133x320 mm
environmental parameters	-5...+45 °C (ETSI EN 300 019-1-3 Class 3.

**Downstream  
47-862 MHz**



### LR 26A

Downstream	
Wavelength	1290nm - 1600nm
Optical return loss	> 40 dB
Fiber	Single Mode
Optical connector	SC/APC
Output impedance	75 ohm
Output return loss	≥ 18 dB (-1,5 dB /
Transmission bandwidth	47 - 862 MHz

Optical input level for controlled electrical output level	-7...+0 dBm
Controlled output level (ALC=on, OMI=5%)	115 dBuV
Distorsion products for (42 ch, CENELEC, flat)	109 dBuV
CTB,CSO	> 60 dB
Output level 42 ch, CENELEC, 9 dB slope. Flat input 0dBm	115 dBuV
Output level 42 ch, CENELEC, 0 dB slope. Flat input 0dBm	111 dBuV
CTB,CSO	> 60 dB
Attenuator adjustable	0-15 dB
Steps	0.5 dB
Equalizer adjustable	0-15 dB
Steps	0.5 dB
Sensitivity	< 5.5 pA/√Hz
RF test point at output	- 20 dB RF test

### Handset functions using OK41/41A

Attenuation	0-15 dB
Equalizer	0-15 dB
AGC control	on / manual
AGC offset	- 3...+3 dB

### Monitoring

Optical input level	
Attenuator settings	
Equalizer settings	
AGC status	

### General

Operating voltage	180-265 V AC
Power consumption	< 15 W
Connectors	PG11
Protection class	IP 24
Operating temperature	-20°C...+55°C
EMC	EN 50083-2
Dimensions	232x145x86mm
Price	£197.02

**High RF  
Output**

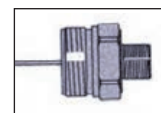
### OK 41A Programming Unit



**£51.55**

Select F or IEC  
Connector

F



TF1 £7.35

IEC



TIEC 1 £10.03

**Downstream**  
**47-1006MHz**



*Lower cost option on page 24a  
only £95.00*

**Incredible  
Value**

**Downstream**  
**85-1006 MHz**  
**Upstream**  
**5-65MHz**



	LR91	LR92
<b>Downstream</b>		
Wavelength		1260-1630nm
Opt. Return Loss		>40dB
Fiber		Single Mode
Optical Connector		SC/APC
Output Impedance		75 Ohms
Frequency Range	47-1006MHz	85-1006MHz
Output Level with input at -8dBm		90dBuV
Optical Input Level		1dBm to -8dBm
Typical noise input		4pA/√ Hz
Signal to noise at -5dBm		≥ 50dB
Max RF out ,CSO ≥ 60d ,CTB ≥ 60dB , -4dB slope		98-100dBuV
<b>Variable Attenuator</b>		
		0-20dB
<b>RF Connector</b>		
		F-type
<b>Optical Input low indication</b>		
		Red LED
<b>Optical Input within correct level indication</b>		
		Green LED
<b>Optical input high indication</b>		
		Yellow LED
<b>Upstream</b>		
Laser	-	*FP 1310nm
Optical power	-	3dBm
Optical Connector	-	SC/APC
RF input level	-	75-95dBuV 80dBuV nominal
RF bandwidth	-	5-65MHz
Gain adjustment	-	0-20dB
Test point up and down stream	-	-20dB
<b>General</b>		
Power		220-240V AC
Power Consumption	6W	6W
Operating Temperature		-10 +50C
Dimension WxHxD		163x90x50 mm
Price	£103.10	£136.30

## Fiber Optic Micro Receivers & Transmitter 1100-1600 nm

**Transmitter 40-1000MHz**  
Complete with PSU

Using Fiber Optics for TV distribution ,is cost effective. Fibre cables can be located near high voltage mains cables. See page 34 for very **low cost splicer**



**SC/APC**



1mW	TXF 1	£95.00
3mW	TXF 3	£95.00
5mW	TXF 5	£95.00

Prices ex VAT

**Loss at 1600nm** on 1km fiber cable is typically **0.21dB**

**Loss on 100m CT167 coax at 860MHz is -12dB**



Fibre attenuators on page 31 ,a four way fibre splitter has a loss of 6.6dB,1km of fiber typical loss 0.4dB .Total 7dB .If you test with a 10dB attenuator,(£6.55 ) this can confirm enough light output will feed the network and provide a 3dB margin.

## Receivers. F connector output for direct connection to RF distribution amplifier

Connection Types				
RF out connector		75Ω F-"Female" connector		
Optical Connector In		SC/APC		
Optical Info				
Input Optical Power		0~-18dBm	0dBm = 47dBmV	-18dBm = 29dBmV
Optical Return Loss		>45dB		
Optical Receiver Wavelength		1100~1600 nm		
Optical Fiber Type		Single Mode		
RF Parameter				
Frequency Range		40-1000MHZ		
Flatness		±0.5dB		
Output Level	70 dBuV	0dbm optical input power		
Output Impedance	75Ω			
C/N	52 dbc	0dbm optical input power		
Other Parameter				
Power Input Voltage		0 VDC		
Power Consumption		N/A MA		
Dimensions		49*16*12 mm		
Net weight		0.01Kg		

RX3FL £2.50  
Great for DVB-T



SC/APC In.  
F connector out



**AFP F connector Male-Male Adaptor**Price £0.64

## LNB Full band fiber and RF output

**TCG15 FDF G1-O** Price £99.95

Quad band LNB with fiber optic output.



DC power via  
F connector

**FC/PC fiber connector**

Converts 4 bands H/V High/Low  
Into a single mode fiber 950MHz-5.45GHz 7dBm\* at  
1310nm.

This provides typically 20dB<sup>+/-2dB</sup> of reach.

The typical noise figure at 25<sup>deg</sup> C is 0.5dB.

Gain flatness 0.95-5.45GHz 5dB

LO stability ± 1MHz

Ageing 10 years ± 4MHz

Optical output is via a **FC/PC connector**.

In band intermodulation products. dBc -23dB

The power requirement 12V <450mA.

Power supply included DC routed with via F connector fitted to PSU.

**TCG15 HB G1-O** Price £85.98

Quad band LNB with wholeband **RF output**  
option.



Converts 4 bands H/V High/Low  
Into a single coaxial output  
.95-5.45GHz 50Ω

This enables large fiber sat systems as it can feed several fiber transmitters. Normally with a direct fiber output from the LNB there is a limit to how many ways the fibre cable can be split. Using a wholeband LNB many fiber transmitters can be added, to enable very much larger systems to be constructed.

Use **very low loss feeder** from the LNB to the fiber transmitters if the cable run is long to the head end.

The power requirement is 12VDC power typically 450ma via a N connector 50Ω.

Fits standard dishes with 40mm clamp.

**LNB fiber optic output  
with C120 flange option.**

**TCG15 FDF G1-O C120**

3dB higher output than  
standard LNB, doubles  
the number of ways the  
fibre cable can be split  
compared to  
,TCG15 FDF G1-O.

**Price £90.15**



**C120 Feed horn  
TADF 120**

**Price £33.48**



**Prices Exlude VAT**

## Four way splitter .95-5.45GHz.

### TD4-8-5G

4 way active splitter  
.95-5.45GHz  
Connectors N Type 50 ohm  
**Price £39.0**

Power supply **TD4-8-5G**  
**PSU 12V 1A £7.95**

Lead to connect PSU jack to  
F connector.  
**FWSL £1.45**



### TCX 78 7/8" 50 ohm feeder

May be required if a longer coax lead is needed to connect from whole band LNB.  
Excessive coax cable losses at the top of the band can be reduced if a lower loss feeder is used from the LNB to the laser transmitter. See transmitter section for connectors and similar cables that have low loss at 5GHz.

Frequency MHz	Attenuation dB/100 ft	Attenuation dB/100 m
1000	1.25	4.12
2300	2.02	6.63
5000	3.23	10.6

The above type of feeder may be a solution for whole-band LNB downloads if the download is not very short.  
**RG214** a cable similar to CT167 in size (10.8mm OD) Has a loss of 23dB at 900MHz and 72dB at 5000MHz 100m.



7/8" feeder  
1/2" feeder

30m of 7/8 feeder equals typically a 6dB slope 960-5000MHz and approx. 2.0dB across one band.  
30m of 1/2" feeder equals typically a 3-4dB slope across one band.  
If there is a 3dB slope across one of the four band between .95 to 5.65Ghz the system will only feed 50% of the fiber nodes that it otherwise could if there were no or little slope.  
So fitting a very good quality download from the LNB is very important.  
Because of the OD of a 7/8 feeder 50mm and its bending radius a jumper cable will be needed at both ends to reduce the cable size to a manageable size to connect into the LNB and the fiber transmitter or splitter.  
RG214 is suitable for this.

## Fiber receivers four switched sat+terrestrial

### TYG1QUAD TA

**Price £79.05**

Optical input is via a  
**FC/PC connector**.

**Connect directly to sat receivers.**

Powered via DC voltage from sat receiver or with a separate PSU, see below, comes with fixing bracket



Converts optical input to 4 switched outputs  
H/Highband H/Lowband 1.1GHz-2.10GHz.  
V/Highband V/Lowband 0.95GHz-2.10GHz.

The minimum input level is -13dBm and the maximum input 0dBm.  
Nominal output 70dBuV, this can vary depending on noise floor and variable input levels on different multiplexes.

## Fiber receivers quad band output.

### TYG1QUAT A

**Price £69.07**

**Connects to sat multi switches.**

Powered via DC voltage from switch or with a separate PSU, see below, comes with fixing bracket.



Optical Input is via a **FC/PC connector**.  
Used for switch systems

Converts optical input to 4 outputs bands consisting of.  
H/Highband H/Lowband 1.1GHz-2.10GHz.

V/Highband V/Lowband 0.95GHz-2.10GHz.  
Also one terrestrial output.

The minimum input level is -13dBm and the maximum input 0dBm. Allowance has to be made in the different levels of each carrier transmitted within each band and frequency response errors in the sat dish which will limit the length of fiber used and /or how many splitters are in the network.

If the system reach for example is normally 20dB with the input levels all similar, then if the difference in input carrier levels are poor and vary by 10dB then the system reach is reduced by 10dB. This would also apply in a non fiber network.

There is some allowance for this, approx 3dB for a single fiber output driving 32 points.

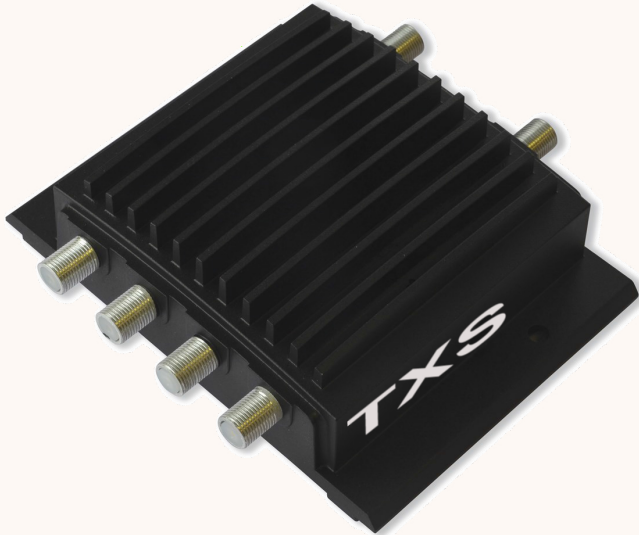
It is more critical to ensure the front end levels are correct on a fiber network as adding additional in-line fiber optic amplifiers in the chain is a more expensive option than ensuring the levels are correct at the input.

**Power supply £10.95**

Compatible with most traditional multiswitches.

[Supplied with a 20 volt power supply.](#)

**TYGQ 100A2 Price £59.03**



Sky Q Sat receivers enables recordings to be made on up to 6 programs at once as well as providing UHD TV reception.

To do this frequencies up to 2.4GHz are used on the inputs to the Sky Q receiver to avoid too many input coax cables.

Also a facility is provided to input terrestrial broadcasts.

A typical home can then have several TV sets fed from a single Sky Q receiver with Sky satellite TV and Terrestrial TV and radio via Wi Fi radiated in the home from the Sky box.

	Min	Max
Input 1 RF frequency range (MHz)	88	1950
Input 2 RF frequency range (MHz)	950	1950
Input 3 RF frequency range (MHz)	1100	2150
Input 4 RF frequency range (MHz)	1100	2150
Impedance		75Ω
Nominal input level		75dBμV

RF Specification		
Parameter	Min	Max
Nominal impedance		75Ω
Return loss		10dB
Gain variation across band		6dB
Nominal output level		80dBμV

Control signals			
Vertical select voltage	11.5V	14.0V	13V nominal
Horizontal select voltage	16V	19V	18V nominal
Low / High band	0/22KHz tone		

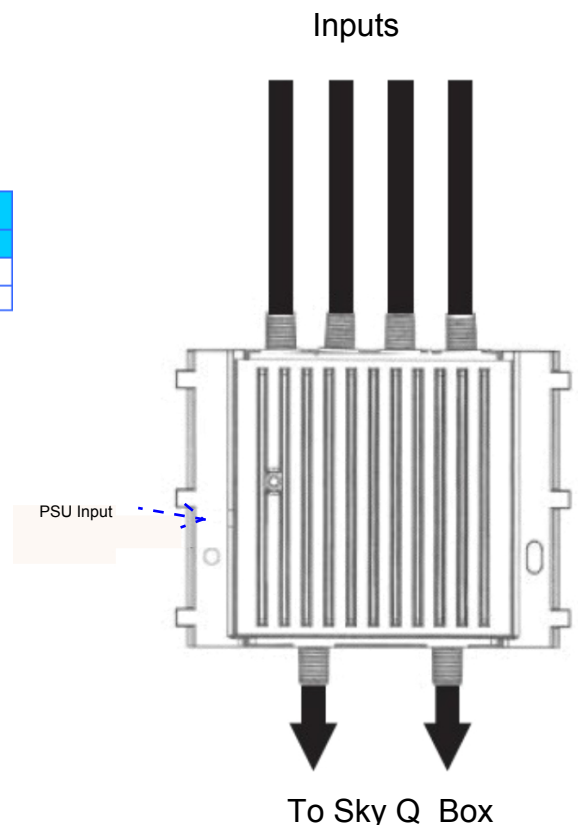
DC specification	
Input voltage	20V
Current consumption	430mA max
Max supply current (inputs total)	500mA
Max supply current (inputs per port)	250mA

Connectors	
Input	F x 4
Output	F x 2
Power supply	2.1mm Jack

Environmental Specification	
Operating Temperature	-20°C to +50°C
Storage temperature	-40°C to +70°C

Optical cabling	
Fibre type	Single mode
Standard	GI - approved G657a

Dimensions	
Size (W x H x D)	127mm x 118mm x 38mm
Weight	302g



Sat distribution systems can be configured for Sky Q and standard Sky HD /Freesat  
Contact tech support on [mgrea@bellsouth.net](mailto:mgrea@bellsouth.net).

## Fibre Integrated Reception System

- Converts 4 IF polarities to a single optical output
- Outputs Fibre signal for distribution through 1 x 64 nodes
- Colour coded inputs for polarity matching
- Distributes DTT, FM and DAB
- PSU included

£87.00 Ex VAT



The ..... TQB-F4 has been designed to combine satellite polarities, DTT, FM and DAB onto a single optical output for distribution through a Passive Optical Network of 64 node points. The unit is used to combine all polarities from 1 satellite, or a mixture of 4 polarities from any 4 satellites.

## Technical Specifications

### Optical specification

Parameter	Min	Typ	Max	Units
Laser 1 wavelength		1550		nm
Laser 2 wavelength		1530		nm
Total optical output power	7	8		dBm Combined 1530nm and 1550nm

### Satellite band RF specification

Input RF frequency	950	2150	MHz	SAT1, SAT2, SAT3 and SAT4 inputs
Input impedance		75	Ohm	
Number of inputs		4		
Input return loss		10	dB	
Total input power			97	dBμV
Maximum input power per transponder			82	dBμV For 32 transponders
Output RF frequency	950-2150 (Band 1,Band 3) & 2550-3750 (Band 2 ,Band 4)		MHz	Stacked frequency bands

### Terrestrial band RF specification

RF frequency band	174	862	MHz
Input impedance		75	Ohm
Input return loss		10	dB
Maximum input power	-5dBμV compared with sat band 1 (black triangle)		
Noise figure		10	

### DC specifications

Power supply voltage	12	20	21	V
Current consumption	≤ 500			mA For 20V power supply (not including LNB)
LNB voltage	Available on each input			All inputs short circuit protected

### Connectors

Output	Fibre optic FC/PC
Satellite inputs	F
DC connector	2.1mm socket

### Dimensions

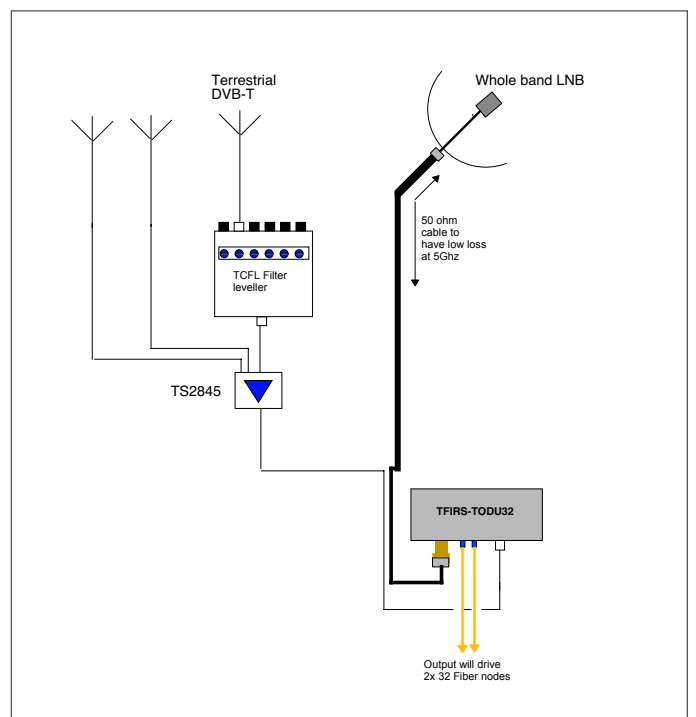
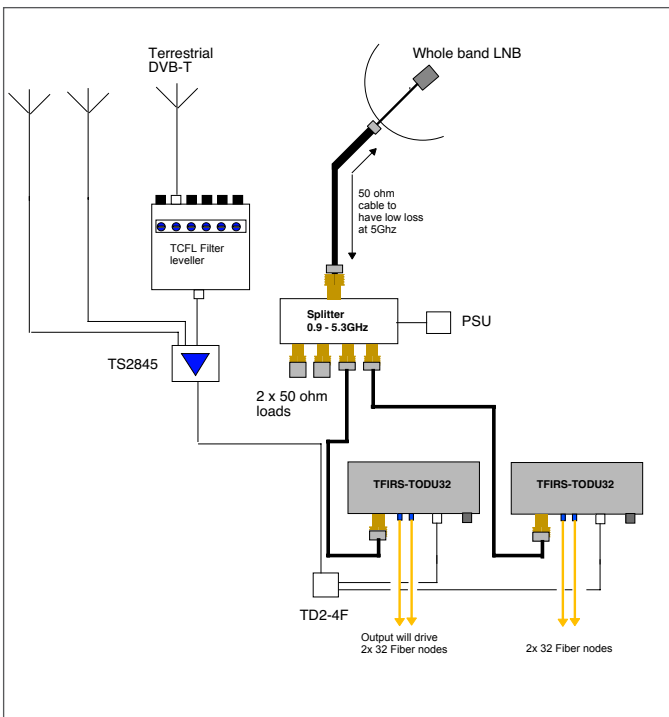
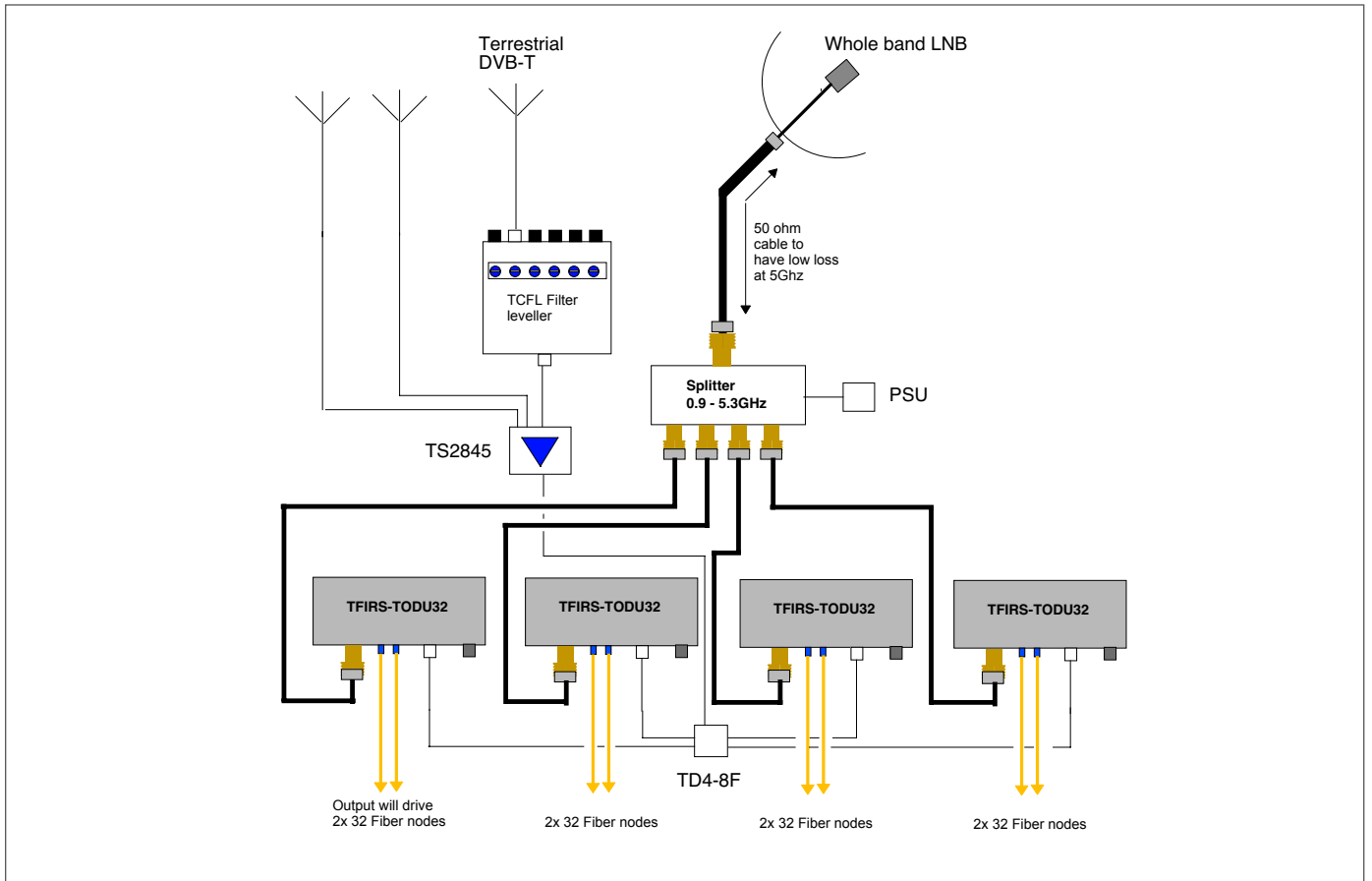
Size	140 x 145 x 33 mm
Weight	300g

### Environmental specification

Operating Temperature	-30 to 60°C
Storage Temperature	-10 to 50°C

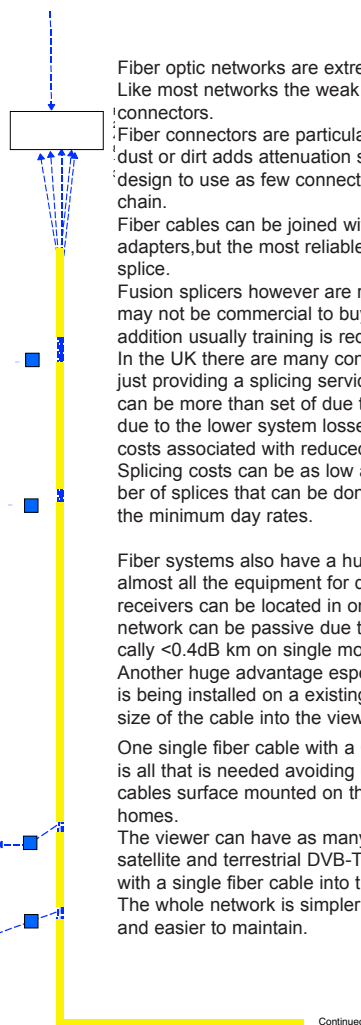
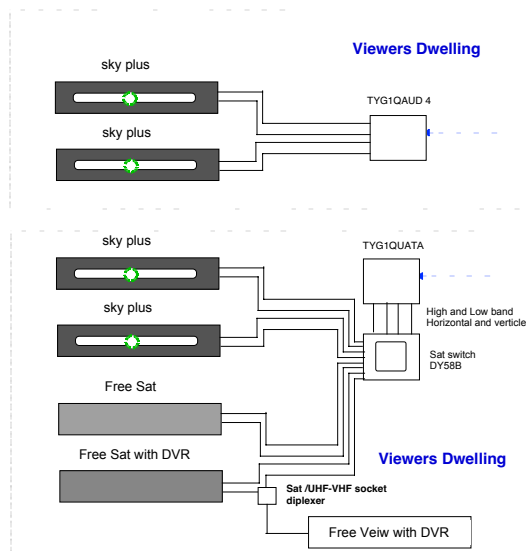
### Optical Cabeling

Fibre Type	Single mode
Standard	GI - Approved G657a



## Fiber splitter options

2 way  
3 way  
4 way  
8 way  
16 way  
32 way



Fiber optic networks are extremely reliable.

Like most networks the weak points can be joints and connectors.

Fiber connectors are particularly prone to this as any dust or dirt adds attenuation so it makes sense in system design to use as few connections as possible in the chain.

Fiber cables can be joined with connectors and adapters, but the most reliable connection is a fusion splice.

Fusion splicers however are relatively expensive and it may not be commercial to buy one for a single project. In addition usually training is required to use one.

In the UK there are many contractors who specialize in just providing a splicing service and this cost sometimes can be more than set of due to the savings in equipment due to the lower system losses and the maintenance costs associated with reduced reliability.

Splicing costs can be as low as £3.00 a splice if the number of splices that can be done compare favorable with the minimum day rates.

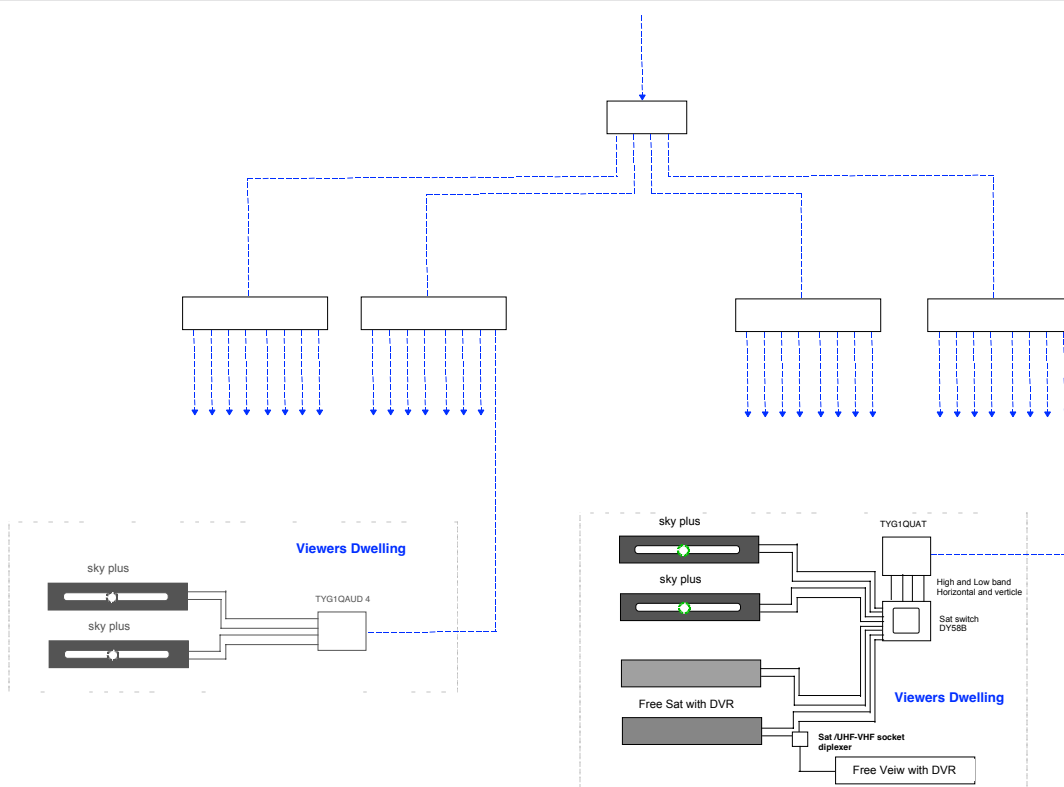
Fiber systems also have a huge advantage and that is almost all the equipment for distribution except the fiber receivers can be located in one location and the whole network can be passive due to the very low losses, typically <0.4dB km on single mode fiber.

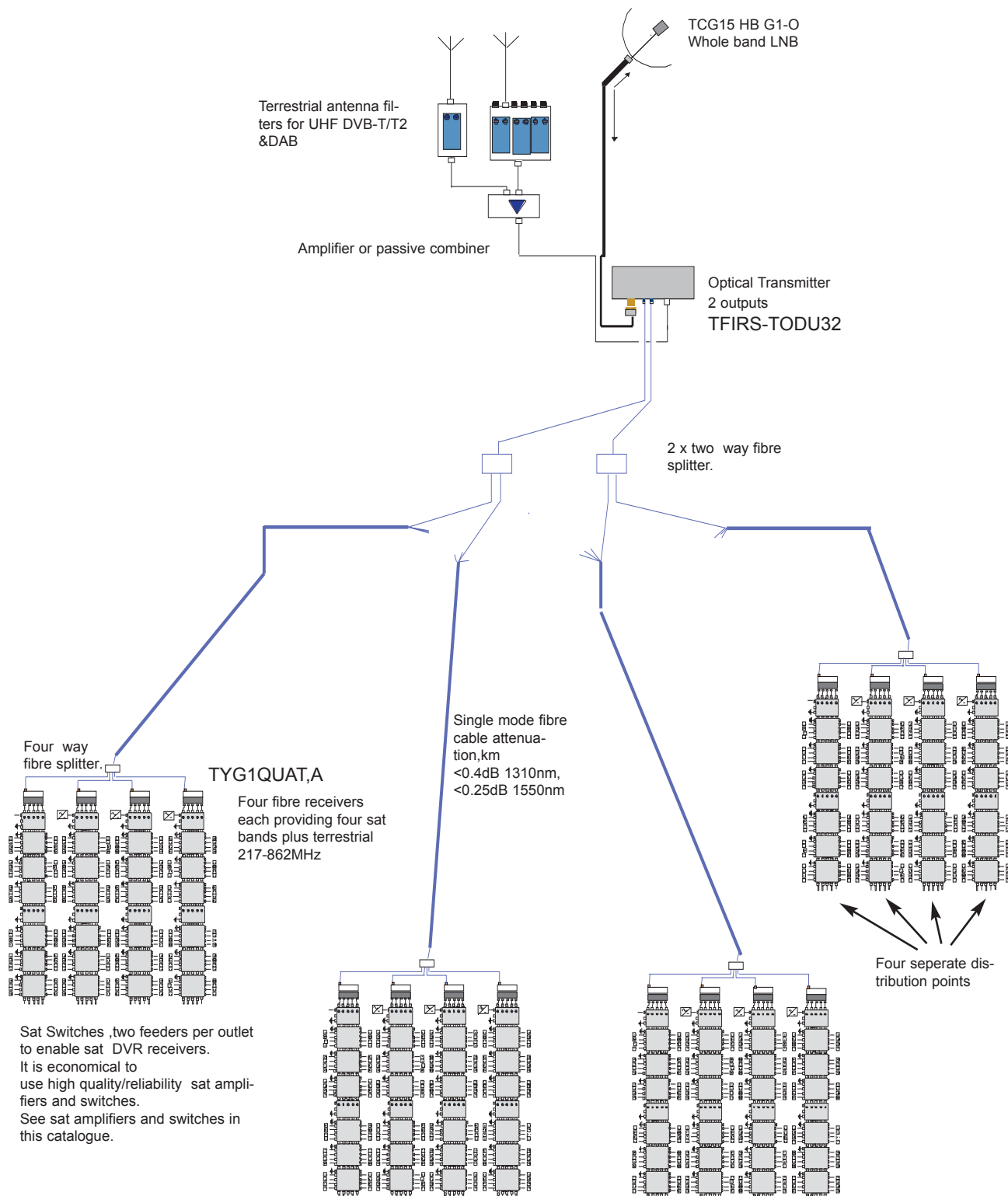
Another huge advantage especially when an installation is being installed on a existing building is the very small size of the cable into the viewers home.

One single fiber cable with a O/D of < 6mm is all that is needed avoiding ugly clumps of multiple RG6 cables surface mounted on the outside walls of viewers homes.

The viewer can have as many points as they require on satellite and terrestrial DVB-T plus FM radio and DAB with a single fiber cable into the viewers dwelling.

The whole network is simpler to install, cheaper to install and easier to maintain.





Splitters for fusion splicing.FC/PC and SC/APC connectors

Fusion spliced splitters are more robust and have a lower optical loss compared to mechanical connectors. Losses of <0.02dB can be achieved on a fusion connection.

Mechanical connections have losses which are typically 0.3dB a connection, so this has to be allowed for in network design. These losses do not seem much, but when you compare a connection loss of 0.3dB it is equal to the attenuation of approx 1km of fiber cable a consideration of these losses has to be made..

Fusion splicing is recommended where the integrity and reliability of the network is extremely important.

Mechanical connectors are a good alternative for non critical applications such as CATV networks.

An alternative to purchasing a fusion splicer is to employ an experienced subcontractor. Costs as low as £3.00 a splice are possible if there are about 100 splices on a project that can be done on one visit.

Design must, as much as possible, limit the amount of cascaded mechanical connections, as MTBF figures increase exponentially the more mechanical connectors are cascaded.

Most new installations can be designed with just a few connections cascaded, typically four to five so reliability is built in the design of the network..

FC/PC connectors are more robust mechanically.

SC/APC connectors have an angled fiber connection and provide slightly better mating between surfaces and consequently lower losses than FC/PC connectors.

FC/PC connectors are better in outdoor and harsh environments used with suitable sealing tapes. So allowances have to be made for the optical loss of the different types of connection used if several are used in a chain.

**FC/PC type connector**



**SC/APC type connector**



**SC/APC type Attenuator**

<b>SC/APC FIBATT-1dB</b>	<b>1dB</b>
<b>SC/APC FIBATT-2dB</b>	<b>2dB</b>
<b>SC/APC FIBATT-5dB</b>	<b>5dB</b>
<b>SC/APC FIBATT-10dB</b>	<b>10dB</b>
<b>SC/APC FIBATT-15dB</b>	<b>15dB</b>
<b>SC/APC FIBATT-20dB</b>	<b>20dB</b>
<b>£6.55</b>	

**FC/PC type Attenuator**

<b>FC/PC FIBATT-5dB</b>	<b>5dB</b>
<b>FC/PC FIBATT-10dB</b>	<b>10dB</b>
<b>FC/PC FIBATT-15dB</b>	<b>15dB</b>
<b>FC/PC FIBATT-20dB</b>	<b>20dB</b>
<b>£6.55</b>	



**SC/APC type coupler, for joining two pre terminated fiber cables together.**

**FC/PC type coupler .**

**FC/PC CPLB**  
**Barrel type coupler**  
**£0.75**



**SC/APC CPL**  
**£3.40**



**FC/PC Terminator**  
**TILFBT**  
**£2.86**



**Patch with SC/APC type on one end and a FC/PC type on the other end**  
.See list of leads with fiber connectors



**Pigtails with single mode fiber available with SC/APC or FC/PC connector to fusion splice to an incoming fiber**



Splitters with SC/APC and FC/PC connectors 1310-1550nm Polarization stability 0.1dB  
 Typical variation in insertion /side loss 0.1dB Operating temperature -30 to +70 deg

Type	Description	Side loss	Through loss	Connector	Price
TD2-3.2FBR	Two way equal splitter	3.2dB	3.2dB	None	£12.92
TA2-3.8-2.9FBR	Two way unequal splitter(tap)	3.8dB	2.9dB	None	£21.00
TA2-4.3-2.5FBR	Two way unequal splitter(tap)	4.3dB	2.5dB	None	£21.00
TA2-5.6-1.8FBR	Two way unequal splitter(tap)	5.6dB	1.8dB	None	£21.00
TA2-6.4-1.45FBR	Two way unequal splitter(tap)	6.4dB	1.45dB	None	£21.00
TA2-7.4-1.15FBR	Two way unequal splitter(tap)	7.4dB	1.15dB	None	£21.00
TA2-8.7-0.9FBR	Two way unequal splitter(tap)	8.7dB	0.9dB	None	£21.00
TA2-10.6-0.6FBR	Two way unequal splitter(tap)	10.05dB	0.6dB	None	£21.00
TA2-13.7-0.35FBR	Two way unequal splitter(tap)	13.7dB	0.35dB	None	£21.00
TA2-21-0.15FBR	Two way unequal splitter(tap)	21dB	0.15dB	None	£21.00
TD2-3.2FBR SC/APC	Two way equal splitter	3.2dB	3.2dB	SC/APC	£13.80
TA2-3.8-2.9FBR SC/APC	Two way unequal splitter(tap)	3.8dB	2.9dB	SC/APC	£21.00
TA2-4.3-2.5FBR SC/APC	Two way unequal splitter(tap)	4.3dB	2.5dB	SC/APC	£21.00
TA2-5.6-1.8FBR SC/APC	Two way unequal splitter(tap)	5.6dB	1.8dB	SC/APC	£21.00
TA2-6.4-1.45FBR SC/APC	Two way unequal splitter(tap)	6.4dB	1.45dB	SC/APC	£21.00
TA2-7.4-1.15FBR SC/APC	Two way unequal splitter(tap)	7.4dB	1.15dB	SC/APC	£21.00
TA2-8.7-0.9FBR SC/APC	Two way unequal splitter(tap)	8.7dB	0.9dB	SC/APC	£21.00
TA2-10.6-0.6FBR SC/APC	Two way unequal splitter(tap)	10.05dB	0.6dB	SC/APC	£21.00
TA2-13.7-0.35FBR SC/APC	Two way unequal splitter(tap)	13.7dB	0.35dB	SC/APC	£21.00
TA2-21-0.15FBR SC/APC	Two way unequal splitter(tap)	21dB	0.15dB	SC/APC	£21.00
TD2-3.2FBR FC/PC	Two way equal splitter	3.2dB	3.2dB	FC/PC	£14.92
TA2-3.8-2.9FBR FC/PC	Two way unequal splitter(tap)	3.8dB	2.9dB	FC/PC	£21.00
TA2-4.3-2.5FBR FC/PC	Two way unequal splitter(tap)	4.3dB	2.5dB	FC/PC	£21.00
TA2-5.6-1.8FBR FC/PC	Two way unequal splitter(tap)	5.6dB	1.8dB	FC/PC	£21.00
TA2-6.4-1.45FBR FC/PC	Two way unequal splitter(tap)	6.4dB	1.45dB	FC/PC	£21.00
TA2-7.4-1.15FBR FC/PC	Two way unequal splitter(tap)	7.4dB	1.15dB	FC/PC	£21.00
TA2-8.7-0.9FBR FC/PC	Two way unequal splitter(tap)	8.7dB	0.9dB	FC/PC	£21.00
TA2-10.6-0.6FBR FC/PC	Two way unequal splitter(tap)	10.05dB	0.6dB	FC/PC	£21.00
TA2-13.7-0.35FBR FC/PC	Two way unequal splitter(tap)	13.7dB	0.35dB	FC/PC	£21.00
TA2-21-0.15FBR FC/PC	Two way unequal splitter(tap)	21dB	0.15dB	FC/PC	£21.00
TD3-5.7FBR	Three way splitter	3x5.7dB		None	£15.15
TD4-6.6FBR	Four way splitter	4x 6.6dB		None	£19.70
TD8-10.7FBR	Eight way splitter	8x 10.7dB		None	£41.00
TD16-13.7FBR	Sixteen way splitter	16x 13.7dB		None	£88.00
TD32-16.7FBR	Thirty two way splitter	32x 16.7dB		None	£182.00
TD3-5.7FBR SC/APC	Three way splitter	3x5.7dB		SC/APC	£15.65
TD4-6.6FBR SC/APC	Four way splitter	4x 6.6dB		SC/APC	£20.50
TD8-10.7FBR SC/APC	Eight way splitter	8x 10.7dB		SC/APC	£42.00
TD16-13.7FBR SC/APC	Sixteen way splitter	16x 13.7dB		SC/APC	£90.00
TD32-16.7FBR SC/APC	Thirty two way splitter	32x 16.7dB		SC/APC	£187.00
TD3-5.7FBR FC/PC	Three way splitter	3x5.7dB		FC/PC	£25.26
TD4-6.6FBR FC/PC	Four way splitter	4x 6.6dB		FC/PC	£35.71
TD8-10.7FBR FC/PC	Eight way splitter	8x 10.7dB		FC/PC	£78.70

## Fiber pre terminated leads

Pre terminated Single Mode leads/reels Connector Price

TLP-FC/PC1M	1 meter lead	FC/PC	£3.10
TLP-FC/PC3M	3 meter lead	FC/PC	£3.40
TLP-FC/PC5M	5 meter lead	FC/PC	£4.30
TLP-FC/PC10M	10 meter lead	FC/PC	£6.10
TLP-FC/PC15M	15 meter lead	FC/PC	£10.46
TLP-FC/PC20M	20 meter lead	FC/PC	£13.25
TLP-FC/PC30M	30 meter lead	FC/PC	£17.85
TLP-FC/PC40M	40meter lead	FC/PC	£22.45
TLP-FC/PC50M	50meter lead	FC/PC	£29.99
TLP-FC/PC75M	75meter lead	FC/PC	£43.65
TLP-FC/PC100M	100 meter reel	FC/PC	£59.11
TLP-FC/PC150M	150 meter reel	FC/PC	£90.02
TLP-FC/PC200M	200 meter reel	FC/PC	£116.95
TLP-FC/PC500M	500 meter reel	FC/PC	£286.24
TLP-FC/PC-PIG	2.5m FC/PC pigtail	FC/PC	£4.50

TLP-SC/APC0.5M	0.5 meter lead	SC/APC	£3.28
TLP-SC/APC2M	2 meter lead	SC/APC	£3.60
TLP-SC/APC5M	5 meter lead	SC/APC	£4.60
TLP-SC/APC-PIG	2.5m SC/APC pigtail	SC/APC	£3.90

TLP-SC/APC-FC/PC0.5M	0.5 meter lead	SC/APC to FC/PC	£9.63	50 + £3.28
TLP-SC/APC-FC/PC2M	2 meter lead	SC/APC to FC/PC	£10.35	£3.60
TLP-SC/APC-FC/PC5M	5 meter lead	SC/APC to FC/PC	£10.93	£4.60

TLP-SC/APC-SC/PC0.5M	0.5 meter lead	SC/APC to SC/PC	£3.98
TLP-SC/APC-SC/PC2M	2 meter lead	SC/APC to SC/PC	£10.35 £4.60
TLP-SC/APC-SC/PC5M	5 meter lead	SC/APC to SC/PC	£10.39 £5.50

Underterminated Single Mode Indoor

TLP-UT500M	500 meter reel	underterminated	£47.00
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Armoured single fiber cable.  
Single mode PVC sheath.



3mm O/D



PVC sheath.



3mm O/D



PVC sheath.



3mm O/D



PVC sheath.



3mm O/D



PVC sheath.



3mm O/D



PVC sheath.



3mm O/D



PVC sheath.



3mm O/D



Polyethylene sheath.

## Fiber Cables single mode



Universal . Indoor Outdoor

Attenuation 1310nm 0.32dBkm average, max 0.4dBkm ,1550nm 0.21dBkm average,max 0.3dBkm  
FRNC/LSNH Material Orange

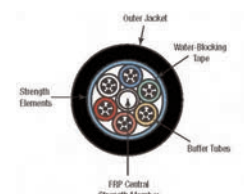
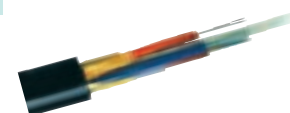
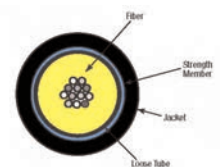
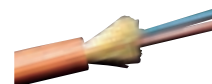
Number of Fibers	Weight kg km	Pulling Tension N	Outside Diameter mm	Minimum Bend Radius mm	Part Number	Reel size	Price
2	19	800	4.67	54	TSMF802	500m	£187.78
4	24	860	5.08	59	TSMF804	500m	£267.84
6	28	1200	5.59	59	TSMF806	500m	£320.62

For Outdoor including underground ducting

Attenuation 1310nm 0.32dBkm average, max 0.4dBkm ,1550nm 0.21dBkm average,max 0.03dBkm  
SheathMaterial PE Black

Number of Fibers	Weight kg km	Pulling Tension N	Outside Diameter mm	Minimum Bend Radius mm	Part Number	Reel size	Price
4	149.00	3500	5.80	58	TSMFPE804	500m	£161.46
6	151.70	3500	5.80	58	TSMFPE806	500m	£185.33

Single mode fiber cable PVC sheath.



Prices and specifications are subject to change. please ask for a quotation with a fixed price period.

### Fibre Light Source TLS - 106

Visible Light Fault Locator,  
Ideal for testing fibre networks &  
termina**Price £66.39**

**TFS1 - Fibre Stripper**, for use with  
3.0mm fibre, designed to remove outer  
jacket and both buffer coverings.  
**Price £19.28**

**TCC1 CleanCore**, the CleanCore cas-  
sette is supplied with a removable car-  
tridge containing the cleaning fabric. The  
cartridge supports 400 cleaning cycles.  
**Price £.....**

**TSP1 Solvent Pen**, powerful univer-  
sal cleaning solvent in a convenient  
pen, compact, portable and most impor-  
tantly effective cleaning solvent for fibre  
connections. **Price £4.55**

**TFSC1 Fiberscope** allows the  
installer to check fibre terminations,ideal  
for use in the field. **Price £81.11**

**TSOPM 1 Optiscan Satellite IF &  
Optical Power Meter**, for use with fiber  
optic LNB and accurate alignment and  
network testing.  
In dBuV & dBm.

#### Specification

Full band 950 to 2150 MHz scan or down to  
160MHz at full zoom.

#### Measuring Range:

RF Input level range 40 dBuV to 90 dBuV  
Optical range +10 to -25 dBm

#### Accuracy:

Typically +/-1 dB.

#### MER:

(SNR) Pass 8dB or more. Marginal 6-7 dB fail  
less than 5 dB

#### BER:

Pass must be greater than 1E-3 on Pre Viterbi.

**Input:** RF 75 ohm BNC. BNC to F adaptor  
supplied .

**Optical type** FC/PC.

#### DiSEqC:

Version 1.2 compatible. Full control of  
motorised dishes , any DiSEqC command can be gener-  
ated.

#### On screen battery indicator:

Battery life 5 hours when powering typical  
LNB.

#### Charge time:

12 hours,

#### Accessories supplied:

Mains charger, car charger lead and BNC to F

**TFC1 - Fibre Cleaver**, Professional  
cleaving tool for use with 3.0mm fibre  
and Field termination kit. **Price £418.93**

**TKS1 Kevlar Scissors**, specifically  
designed for cutting the Kevlar strands  
within the 3mm fiber cable .**Price £14.73**

**TCC2 Cleaning Cube**, the cleaning  
cube is the perfect cleaning solution for  
terminated fibre connections, use dry or  
solvent wet, on the bench or in  
the field. **Price £12.68**

**TFR1 Fibre Rods**, 6 flexible rods  
(varying flex), 2 x FC/PC adaptor + wire  
pulling sock. Aids the installer with pre &  
un-terminated fibre cablerouting.

**Compatible with Super Rod products.**  
**Price £31.50**

**TFS1 Fibre swabs 2.5mm Fibre  
Swabs**,the 2.5mm foam swabs are the  
most versatile and cost effective way to  
clean your female fibre end ports.

**Price £3.97**



**Discontinued**

**Price £494.83**

### TFOFS 1 Fiber optic fusion splice

**Fiber cleaved length:16mm**

#### Specifications

Average splicing loss.	0.01dB MM/0.02dB SM
Return loss	>60dB
Typical splicing time	8 seconds.
Typical heating time	26seconds.

#### Work mode

Program/Splicing/Heating: Automation or manual optionally

#### General Specifications

Power :100-240V 50Hz/60Hz 12 V 25W

(optional)Inner Li-ion battery charger and AC adaptor

Battery Life Support 80 splice and heater operating on one charge.

Weight 1.93kg

Dimensions(L x W x H) 149x120x127mm

**Price £825.00**



Specifications subject to change