



# DIGITAL DNA

**GPON and Networking  
HOSPITALITY Solutions  
FIBRE OPTIC Solutions  
RF signal reception and amplification**



[fracarro.com](http://fracarro.com)



## FRACARRO Solutions

Digital signals are part of Fracarro's DNA.

We have comprehensive expertise in digital signals which is a result of our involvement with this technology since its inception, creating and designing solutions for the **reception and distribution of audio, video, data** in all installations.

From GPON and fibre optic networks, from systems for distributing and managing television services to complex headends, Fracarro digital solutions are available now and are constantly evolving. **For the next 90 years and beyond.**



### GPON (Gigabit Passive Optical Network)

GPON fibre optic solutions to integrate distribution of IP services in multi-user systems, for example the hospitality sector.



### Fibre Optic

Distribution of TV, satellite and data services in digital systems using fibre optic products to distribute high quality signals over long distances with minimal signal degradation such as FTTH (Fibre To The Home).



### Satellite TV Systems

With 90 years of experience, Fracarro offers the most comprehensive range of solutions for the construction of SMATV and IRS systems using a wide range of technology.



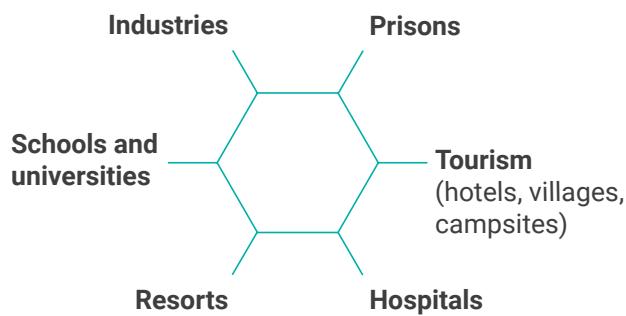
# GPON solutions

With a **dedicated business unit** and over twenty years of experience in the construction of fibre optic systems in Italy and abroad, Fracarro is today the **ideal partner for the distribution of IP services in multi-user networks**.

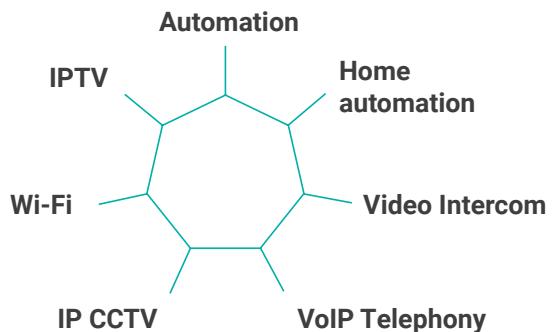
In addition to our **complete range** of high-tech products, **Fracarro** also offers sector operators more **in-depth technical knowledge** to make complex systems operational: an opportunity that allows plant engineering companies to be increasingly independent in the development of advanced solutions which, until a few years ago, would have required major investments and/or subcontracts to system integrators.

**Fracarro's GPON services** enable support of the installation of the whole passive infrastructure, whether fibre optic or copper, due to the Project Management activity, and also the ability to interact with technical representatives for example IT managers for planning the IP-PLAN. Fracarro is also involved in logic programming of networks for routers, L3 star centre switches and L2 secondary PoE and non-PoE, OLT, ONT, routers, etc, integrating multiple services in a reliable and efficient way.

## MARKET and CUSTOMERS



## TO DISTRIBUTE



## Advantages of the GPON solution

- **Simplification** of the system
- Saving of space, materials and time required for installation
- Reduction of plant costs
- Ease of maintenance
- **System open to future technological evolutions**
- Scalable and suitable for any type of installation
- Greater performance, reliability and **safety in data management** (256-bit encrypted traffic)
- **Passive optical network**
- Link distance of up to 20km

## Fracarro services for GPON Systems

Fracarro provides operators with not only high quality professional equipment, but also a specific **consultancy service for GPON projects**.

Depending on the requirements, our experts can be involved in the **design and support of the architecture**, including planning the system and producing the installation diagram as well as the list of materials required.

Technicians are also available when the system is ready to be commissioned including **programming and testing of the system**.

# GPON

For every connectivity requirement, **Fracarro** can **supply all the necessary devices** to fulfill the needs of **different types of GPON networks**, such as FTTR (Fibre to the Room) or FTTD (Fibre to the Desk), for the distribution of heterogeneous services.

Designed to manage networks of up to a 20km reach, each GPON control unit is supplied to respond to individual project requests, both in terms of size and reliability: from exchanges with 4 or 8 PON ports for the smallest instances, to modules that are able to manage an increasing number of ONTs (Optical Network Terminals).

## DATA GPON 4 TX



287558

Optical Line Terminal (OLT) for data distribution over the fibre optic network.

- 4 x PON, Uplink: 4 x GE, 2 x SFP+ 10GE, dual slots for power supplies.

## DATA GPON 8 TX



287559

Optical Line Terminal (OLT) for data distribution over the fibre optic network.

- 8 x PON, Uplink: 4 x GE, 2 x SFP 1GE, 2 x SFP+ 10GE, dual slot for power supply.

## SFP Modules

The Fracarro GPON range also includes accessory modules for connecting the GPON network to the main core switch, where the servers and controllers are connected.



DATA SFP C++



DATA SFP GE

Item	Code	Description
DATA SFP C++	287560	SFP Class C++ module suitable for DATA GPON series OLTs
DATA SFP GE	287555	Uplink SFP 10/100/1000 (RJ45) module suitable for DATA GPON series OLTs

# GPON

Each Fracarro ONT receiver has been designed to meet the different connectivity needs depending on the type of installation: hotel rooms, common areas, offices, technical rooms.

ONTs are available with:

- 2.4 Giga ethernet ports
- 4 Giga ethernet PoE ports, connecting devices to be powered remotely, e.g. access points and IP cameras
- Pots connections, to manage analogue telephones
- Embedded Wi-Fi, to manage wireless connectivity in small to medium installations



## GPON-RX WAC-P

287561

Optical Network Terminal (ONT) for receiving data through the fibre optic. Ideal for broadband access, WiFi connectivity (ac) and analogue telephones.

- 2x GE, 1x FXS (RJ11 analogue phone), 11ac WiFi 2.4/5GHz



## GPON-RX WAC 4GE

287615

Optical Network Terminal (ONT) for data distribution through the passive fibre optic infrastructure, equipped with 4 GE ports, 1 analogue phone port and dual band access points.

- 4x GE, 1x FXS (RJ11 analogue phone), 11ac WiFi 2.4/5GHz



## GPON-RX 4 POE

coming soon

Optical Network Terminal (ONT) for data distribution through the passive fibre optic infrastructure, equipped with 4 POE ports.

- 1 x GE, 3 x FE (fast ethernet, 100 Mbit/s) POE

## ONT with RF output

The Fracarro ONT range is completed with solutions for distributing the RF television signal over a single fibre.

Item	Code	Description
GPON-RX W-TV-P	287562	1 x GE, 1 x FE, 1 x FXS, 2 x CATV, WIFI
GPON RX LITE TV	287555	1 x GE, 1 x CATV
GPON RX PASS TV	287556	Passive ONT with 1 CATV output and integrated WDM diplexer

# NETWORKING Ethernet switch

NEW

Layer 3 switch capable of providing flexibility, performance and scalability, ideal for connecting multiple services such as servers, controllers etc. or for managing distributed data points.

The 4 SFP+ 10GE ports allow stacking or uplink connection with other switches of the same series.



## FSW-48GE4SFP2AC

287625

48-Port 10/100/1000 GE layer 3 switch with 336 backplane Gbps, ideal as a star centre switch.



## FSW-24GE4SFPOE

287626

24-Port 10/100/1000 GE POE layer 3 switch with backplane 128Gbps, capable of powering devices in the field such as IP video surveillance cameras and access points.



## FSW-24GE4SFP

287627

24-Port 10/100/1000 GE layer 3 switch with 128 backplane Gbps, enables you to manage network points distributed in common areas, offices, etc.

## SFP Modules

Modules for fibre optic interconnection between switches located in the same cabinet or between cabinets located in different rooms.



Item	Code	Description
DATA SFP GE	287555	Uplink or trunk SFP 10/100/1000 (RJ45) module between network switches
DATA SFP 10 GE	287761	10GE SFP+ (RJ45) uplink or trunk module between network switches

## Floor mounting

The 19" floor mounting cabinets, due to their stability and load capacity, are designed for setting up technical areas and for the installation of telecommunications, IT and audio/video equipment.

Easy to assemble and disassemble make them ideal if access to the assembly point is restricted.

The cabinets are supplied assembled.



RK42U 810S



RK42U 68S



RK36U 68P

Item	Code	Height	Dimensions mm (H x W x D)	Uprights	Front door
<b>RK42U 810S</b>	287676	42U	2000 x 800 x 1000	4	grill
<b>RK42U 88S</b>	287677	42U	2000 x 800 x 800	4	grill
<b>RK42U 68P</b>	287683	42U	2000 x 600 x 800	4	tempered glass
<b>RK36U 68P</b>	287678	36U	1735 x 600 x 800	2	tempered glass
<b>RK36U 66P</b>	287679	36U	1735 x 600 x 600	2	tempered glass
<b>RK24U 68P</b>	287681	24U	1200 x 600 x 800	2	tempered glass
<b>RK24U 66P</b>	287680	24U	1200 x 600 x 600	2	tempered glass

## Wall mounting

The 19" wall mounted rack cabinets are designed for smaller rooms and are quick and easy to install with ease of access for equipment installation and maintenance. The ventilated top is ready for fans to be used. Also included is a cable gland slot and bracket for fixing to a wall.



Item	Code	Height	Dimensions mm (H x W x D)	Uprights	Front door
<b>RK12U 64PW</b>	287682	12U	615 x 600 x 450	permanent	tempered glass
<b>RK9U 64PW</b>	287684	9U	485 x 600 x 450	permanent	tempered glass

## Rack accessories

The Fracarro range also includes accessories for managing copper and fibre cables and supports for equipment not designed for 19" housing. View the complete list on the website.



OPB24IR



RKA CCV 842U

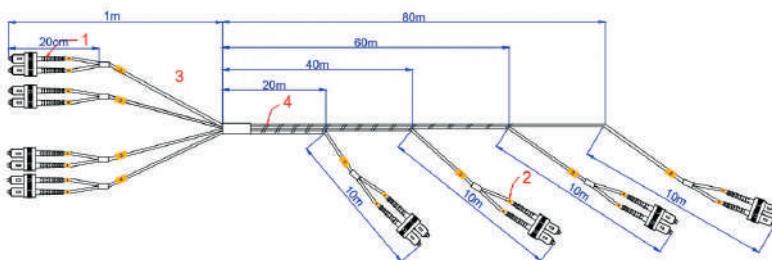


RKA RR1000

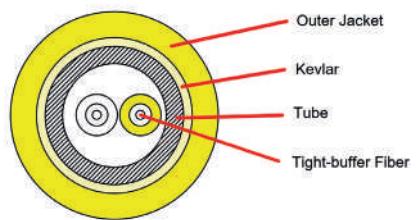
Item	Code	Description
<b>OPB24IR</b>	289404	Optical drawer, powder coated steel, for rack fixing. Capacity for up to 24 SC/APC optical connections
<b>RKA CCV 842U</b>	287659	Vertical uprights for 42U cabinets
<b>RKA PP019A</b>	287665	1U slotted horizontal cable gland panel for installation in 19" rack cabinet including 4 fixed rings.
<b>RKA PP019C</b>	287685	1U horizontal blind cable gland panel for installation in 19" rack cabinet including 5 fixed rings
<b>RKA PS1U</b>	287662	1U brush panel for installation in 19" rack cabinet.
<b>RKA RR1000</b>	287669	Adjustable shelf for rack cabinets up to 1000mm deep, with fixings to the 4 uprights
<b>RKA RR800</b>	287672	Adjustable shelf for rack cabinets up to 800mm deep, with fixings to the 4 uprights
<b>RKA RE800</b>	287670	Adjustable and retractable shelf for rack cabinets up to 800mm deep, with fixings to the 4 uprights
<b>RKA RF350</b>	287671	Fixed shelf 350mm deep for 19" rack cabinets, with fixings on 2 uprights

## Pre-terminated fibre cables

Indoor single-mode fibre optic cables for vertical uprights (**CPR Cca classification**), equipped with **10m branches with connectors every 20m** with SC/APC connector and **PULL traction system**.



OPC8I90C-SA-DP



duplex

Item	Code	Total length m	Fibre no.	Fibre breaks no.	Optical connector
<b>OPC4I90C-SA-P</b>	287701	90	4	4	SC-APC simplex
<b>OPC8I90C-SA-DP</b>	287702	90	8	4	SC-APC duplex
<b>OPC8I170C-SA-P</b>	287703	170	8	8	SC-APC simplex
<b>OPC16I170C-SADP</b>	287704	170	16	8	SC-APC duplex

# NETWORKING cables and patch cords

NEW

## Indoor cables

Indoor network cables, supplied in 305m coils, made up of 4 balanced 1000Ohm AWG24 flexible twisted copper pairs. Suitable for Gigabit Ethernet applications (IEEE 802.3ab).



Item	Code	Description
CAT5E PVC	287527	Cat. 5E indoor network cable with PVC sheath
CAT5E LSZH	287528	Cat. 5E indoor network cable with LSZH sheath
CAT6 PVC	287529	Cat. 6 indoor network cable with PVC sheath
CAT6 LSZH	287530	Cat. 5E indoor network cable with LSZH sheath

## Outdoor cables

Outdoor network cables, supplied in 500m coils, made up of 4 balanced 1000Ohm AWG24 flexible twisted copper pairs, with black PE sheath. Suitable for Gigabit Ethernet applications (IEEE 802.3ab)



Item	Code	Description
CAT5E PE	287532	Cat. 5E outdoor cable network with PE sheath
CAT6 PE	287533	Cat. 6 outdoor network cable with PE sheath

## Patch cord

RJ45-RJ45 UTP patch cords, made up of 4 balanced 1000Ohm AWG26 flexible twisted copper pairs with red copper conductors and PVC sheath. Suitable for Gigabit Ethernet (IEEE 802.3ab) applications.



Item	Code	Description	Category
CAT5E UTP 1/2mt	287713	UTP patch cord (0.5m)	5E
CAT5E UTP 1mt	287714	UTP patch cord (1m)	5E
CAT5E UTP 2mt	287715	UTP patch cord (2m)	5E
CAT5E UTP 5mt	287716	UTP patch cord (5m)	5E
CAT6 UTP 1/2mt	287717	UTP patch cord (0.5m)	6
CAT6 UTP 1mt	287718	UTP patch cord (1m)	6
CAT6 UTP 2mt	287719	UTP patch cord (2m)	6
CAT6 UTP 5mt	287720	UTP patch cord (5m)	6
CAT6A UTP 1/2mt	287721	UTP patch cord (0.5m)	6A
CAT6A UTP 1mt	287722	UTP patch cord (1m)	6A
CAT6A UTP 2mt	287723	UTP patch cord (2m)	6A
CAT6A UTP 5mt	287724	UTP patch cord (5m)	6A

## RJ45 Keystone jacks

Unshielded RJ45 Keystone sockets for high density installation requirements. Suitable for PoE/POE+/PoE++ connections.



CAT Keystone



CAT Keystone

Item	Code	Description
<b>CAT5E Keystone</b>	287705	RJ45 category 5E Keystone Jack (UTP)
<b>CAT6 Keystone</b>	287706	RJ45 category 6 Keystone Jack (UTP)
<b>CAT6A Keystone</b>	287707	RJ45 category 6A Keystone Jack (UTP)

## RJ45 plugs

Unshielded RJ45 8-pin plug for terminating flexible cables to create patch cords.



CAT5E PLUG Pass



CAT 5E PLUG UTP

Item	Code	Description
<b>CAT5E PLUG Pass</b>	287708	8-pin RJ45 category 5E pass-through plug (UTP)
<b>CAT6 PLUG Pass</b>	287709	8-pin RJ45 category 6 pass-through plug (UTP)
<b>CAT 5E PLUG UTP</b>	287710	8-pin RJ45 category 5E plug (UTP)
<b>CAT 6 PLUG UTP</b>	287711	8-pin RJ45 category 6 plug (UTP)
<b>CAT 6A PLUG UTP</b>	287712	8-pin RJ45 category 6A plug (UTP)

## High performance

Fracarro solutions for the distribution of television programs in **hotels** enable the planning of the communication infrastructure best suited to the needs of the hotel, respecting the constraints of the system and the preferences of the customer, using **high performance professional products**.

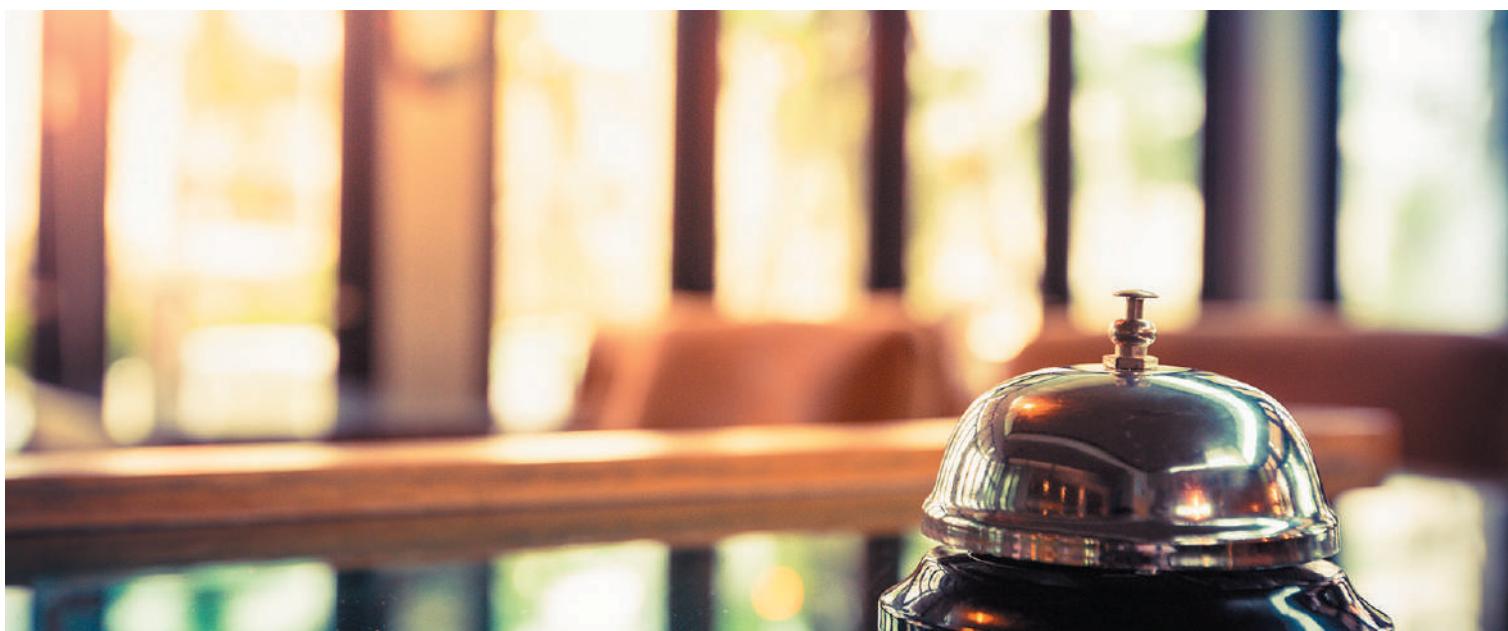
The headends are able to receive content from **different sources** (SAT, DTT, IPTV, external) and distribute them through **any type of infrastructure**, including COAX, IP and fibre optic.

## Maximum reliability

Fracarro hospitality solutions provide headends with a **redundant power supply** to provide stability to the system, limiting disruptions as much as possible.

## Application fields

- Nursing homes
- Hotels
- Sheltered accommodation
- Resorts
- Commercial buildings
- Holiday parks
- Institutional buildings
- Schools
- Prisons
- Campuses
- Hospitals



**GALAXIA** is Fracarro's **professional high density solution** suitable for multi-user systems. Modular and flexible, the **GALAXIA** headend meets all the distribution requirements of **satellite, digital terrestrial or content coming from external sources**. Numerous applications include: hospitality (hotels, villages, campsites, resorts) educational (schools, university campuses), health (hospitals, nursing homes), prisons, ships, institutional buildings and all multi-user facilities in general.

**GALAXIA** enables you to manage not only the contents received from satellite or digital terrestrial antennas, but also those coming from an IPTV system and then make them available again for coaxial distribution or IPTV multicast distribution. **Ideal for distributing IPTV programs through a GPON infrastructure**, the headend features many advantages.

## Key Points

- **Mechanics** 1RU standard 19" rack
- **Dual power supply** as standard
- Forced ventilation
- 6 "hot-swappable" slots available on rear panel
- **4 RJ45 GE ports** on the front panel (2 ports for management, 2 ports for streaming IP in/IP out)
- Supports up to **120 IPTV inputs and 120 IPTV outputs streams (SPTS / MPTS)**
- Different modules available to manage different input sources (i.e. **DVB-S2 / S2X, DVB-T2, DVB-C, HDMI, descrambling, etc.**)
- **WEB interface based headend**: user friendly HTML web interface to set every parameter
- **Advanced parameters configuration**: all the descriptor parameters of each mux (ONID, TSID, NetID) and each program inside the RF mux (LCN, SID, PID, Program name).
- Ideal for distributing **IPTV content through GPON** infrastructure
- **SNMP & HTTP protocols supported**



Item	Code	Description
<b>GX-BOX-DP</b>	287635	1U rack 19" chassis with dual power supply input as standard and 6 available slots
<b>GX-4C2CI-BP-00</b>	287644	Receiver module with 4 x DVB-C tuners (Annex A/C) and 2 x C.I. slots
<b>GX-4S2FTA-BP-01</b>	287636	Satellite receiver module equipped with 4 x independent DVB-S2/S2X (FTA) inputs
<b>GX-4S2CI-BP-01</b>	287637	Satellite receiver module equipped with 4 x DVB-S2/S2X tuners and 2 x C.I. slots
<b>GX-BP-8T-R01A</b>	287638	Multi-modulator equipped with 8 x DVB-T output modulators
<b>GX-4HDMI-BP-R01</b>	287639	HDMI multi-input module (4 x independent HDMI H264 inputs)
<b>GX-2CI-BP-00</b>	287640	Descrambling module (2 x C.I. slots)
<b>GX-4T2CI-BP-00</b>	287641	Digital terrestrial receiver module equipped with 4 x DVB-T/T2 tuners and 2 x C.I. slots
<b>GX-BP-16C-R00</b>	287642	Multi-modulator equipped with 16 x DVB-C output modulators (annex A/C)
<b>GX-Front panel</b>	287643	Blank panel to cover empty slots

# XDG 8S2-8T compact headend

NEW

XDG 8S2-8T is the high performance Fracarro digital compact headend dedicated to the management of medium sized multi-user systems.

It enables you to receive both **encoded programs** and the main international **free-to-air programs** from **8 satellite transponders**.

The headend is capable of transmodulating the programs received in the **8 DVB-T or DVB-C digital terrestrial multiplexes** it is supplied with, to make them available for coaxial distribution.

The embedded web interface allows programming of even the most advanced parameters and allows local and remote configurations to be saved.

## Key Points

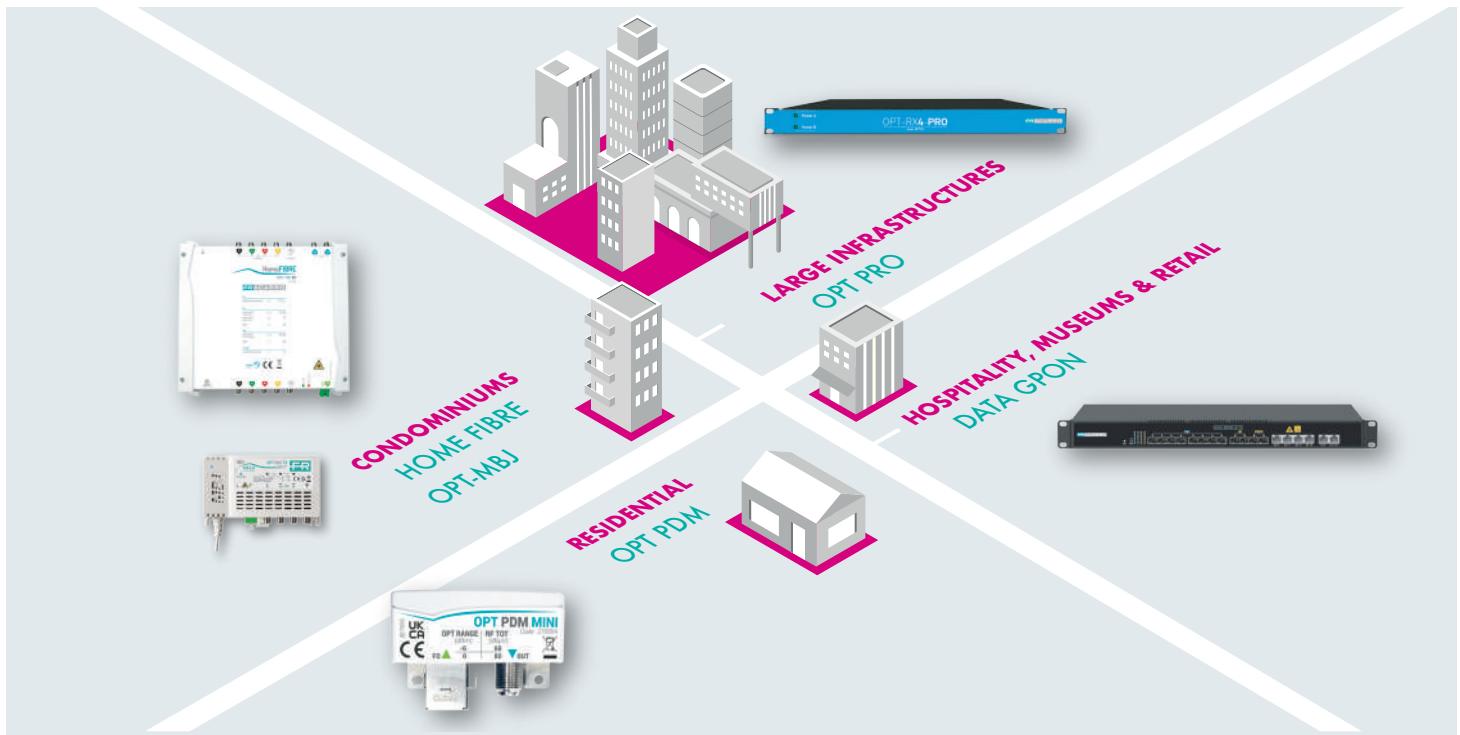
- Compact "all in one" headend
- Up to **8 x DVB-S/S2/S2X independent inputs**
- **8 x DVB-T or 8 x DVB-C** output multiplexes (selectable output modulation during configuration)
- **3 independent Common Interface slots** to insert ProCAMs and professional smart-cards (not included)
- **Dual installation mode:** can be installed in a 19" rack (**1RU standard**) or for wall installation
- Forced ventilation
- **Web interface embedded** for the management of all parameters
- Management of the advanced parameters of each individual program (PID filtering, SID, NIT, LCN, ONID, etc.)
- **SNMP protocol supported**



Item	Code	Description
XDG 8S2-8T	287649	Compact digital headend with 8 x DVB-S2/S2X inputs and 8 x DVBT/C outputs



# FIBRE OPTIC solutions



## Fibre optic solutions for every situation

The use of fibre optic technology for the distribution of satellite TV signals and data within buildings has developed over the last twenty years. From the first exclusively commercial networks - **Fracarro, created in Italy, the first system for the RAI offices in 2001** - to domestic solutions, made possible due to the latest technological innovations.

The **advantages** of using this type of system are well known, starting with the possibility to create **efficient ultra-broadband systems**, open to technological evolution.

In this field, Fracarro offers a wide range of solutions capable of adapting to the different needs of the situation, taking into account the type of structure and the services required.

Plant	Technology	FRACARRO Solution
Large infrastructures	Multiple fibre optic networks with passive PON architecture (Passive Optical Network)	OPT-PRO high end series optical transmitters and receivers. High quality professional products enable the correct distribution of signals in large infrastructures.
Hospitality	Multiservice infrastructure fibre optic GPON (Gigabit Passive Optical Network)	Complete range of solutions including all passive equipment, with which the optical distribution infrastructure is created, to the DATA GPON series optical line terminals which manage the signal in order to make it usable at the terminal points.
Condominiums	Multiservice infrastructure fibre optic	Fracarro's Wide Fibre and Home Fibre are the ideal products to manage these types of systems because they are expandable, modular and enable the creation of broadband systems, distributing SAT and DTV signals and a broadband data network using a single fibre cable.
Small to Medium installations	Single FTTH installations	OPT-PDM passive miniature receivers (no external power supply) enable you to bring all the benefits of fibre optics even in the smallest systems, distributing the signal to TV outlets in the house without using traditional optical receivers.

**WIDE FIBRE** is our latest range of optical transmitters and receivers, solely designed and manufactured by Fracarro, capable of managing satellite and terrestrial signals, utilising **WIDEBAND** technology.

The **number of coaxial cables** connecting the satellite signals to the input of the optical transmitter **is halved** and enables distribution over **large optical networks**, without compromising the quality of the signals available from all optical receivers.

Today, the range includes solutions for managing **one satellite position plus terrestrial signals**, but soon we will have the capability of managing **up to two full satellites** plus terrestrial signals at the same time.

## WIDEBAND optical transmitters key points

- Dual DC-in connector for **redundant power supply**: continuity of service
- **AGC on all coaxial inputs**: maximum operating stability
- **Dedicated lasers** for each H, V and TV: maximum signal quality
- **Status LEDs for each input**: quick visual diagnostics

## WIDEBAND optical receivers key points

- **Extremely compact**
- **Integrated AGC**: maximum stability of the RF output signal
- **Multi-standard receiver** (dSCR/SKY Q, Legacy): maximum flexibility
- **Status LEDs for each output**: quick visual diagnostics
- **Extended optical budget** (-5dBm to -16dBm): enables up to 1 x 64 optical split
- Dedicated optical wavelength for each SAT polarity and TV band: maximum RF signal quality



OPT-TX WB1



OPT-RX WB1 SCD2



OPT-RX WB1 HV

### OPT-TX WB1

270901

**WIDEBAND optical transmitter** for the distribution of 1 full satellite (V-1310nm, H-1330nm) and terrestrial signals (1550nm). PSU included

### OPT-RX WB1 SCD2

270902

**WIDEBAND SCD2 optical receiver** equipped with 2 outputs dSCR/dCSS/SCR/Legacy/terrestrial.

Optical wavelengths used: V - 1310nm, H - 1330nm, TV - 1550nm.

### OPT-RX WB1 HV

270903

**WIDEBAND optical receiver** equipped with 3 outputs.

Optical wavelengths used: V - 1310nm, H - 1330nm, TV - 1550nm.

# HOME FIBRE Optical transmitters and receivers

The **HOME Fibre** range of optical transmitters convert all satellite polarities and digital terrestrial TV signals received from the aerial.



OPT-TX DT



OPT-TX RP



OPT-TX 15..

The Fracarro OPT MICRO range of optical receivers convert the optical signals into RF:

- **Compact size** for easy installation
- **Multicolour LED** for receiver diagnostics
- Ideal for **managing TV/SAT signals** in fibre optic systems
- Compatible with dSCR systems (SKY UK) OPT RX 4 MICRO



OPT RX 4 MICRO



OPT RX QD MICRO



OPT RX DSCR UK

## OPT-TX DT

270694

- **5 separate independent inputs (VL, VH, HL, HH and TV)**
- Output power 7dBm @ 1310nm
- SC/APC optical connector

## OPT-TX RP

270652

- **5 separate independent inputs (VL, VH, HL, HH and TV)**
- **F connector for remote power supply**
- Wavelength 1310nm
- Recommended power supply PSU1430F (code 287614)

## OPT-TX 15.. Series

**OPT-TX 1510** (code 270667) wavelength 1510nm

**OPT-TX 1530** (code 270668) wavelength 1530nm

**OPT-TX 1550** (code 270669) wavelength 1550nm

**OPT-TX 1570** (code 270670) wavelength 1570nm

## OPT RX 4 MICRO

270662

- **SC/APC optical input (level -8dBm to -14dBm)**
- Multifunction LEDs
- Low current consumption

## OPT RX QD MICRO

270661

- **SC/APC optical input (level -8dBm to -14dBm)**
- Auxiliary input for external power supply
- Low current consumption

## OPT-RX dSCR UK

270658

- **SC/APC optical input (level -8dBm to -14dBm)**
- **2 DSCR + TV outputs and 2 Legacy + TV outputs**
- Low current consumption

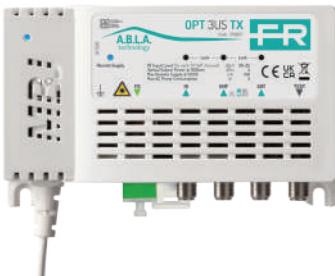
# OPT MBJ Series Optical transmitters and receivers

The **OPT MBJ Series** optical transmitters and receivers are able to mix bands 3, UHF and SAT (IF-IF) and distribute them over fibre optic cable through the infrastructure, in small and medium sized installations. Equipped with **A.B.L.A technology** in the transmitters and automatic gain control in the receivers this ensures maximum signal quality.



## OPT 3US TX

270657



- 3 separate independent inputs: VHF, UHF and SAT (IF-IF)
- **Optical power 5dBm @ 1550nm (SC/APC)**
- Up to 1 x 32 optical splits when used with OPT-RX receiver
- Ideal with passive optical receivers (OPT-PDM)

## OPT T+S TX PLUS

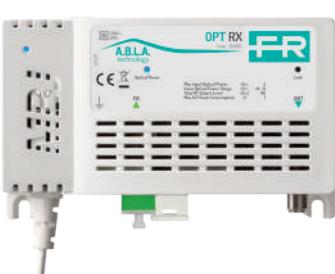
270656



- 1 mixed TV/SAT (IF-IF) input
- **Optical power 9dBm @ 1550nm (SC/APC)**
- Up to 1 x 64 optical splits when used with OPT-RX receiver

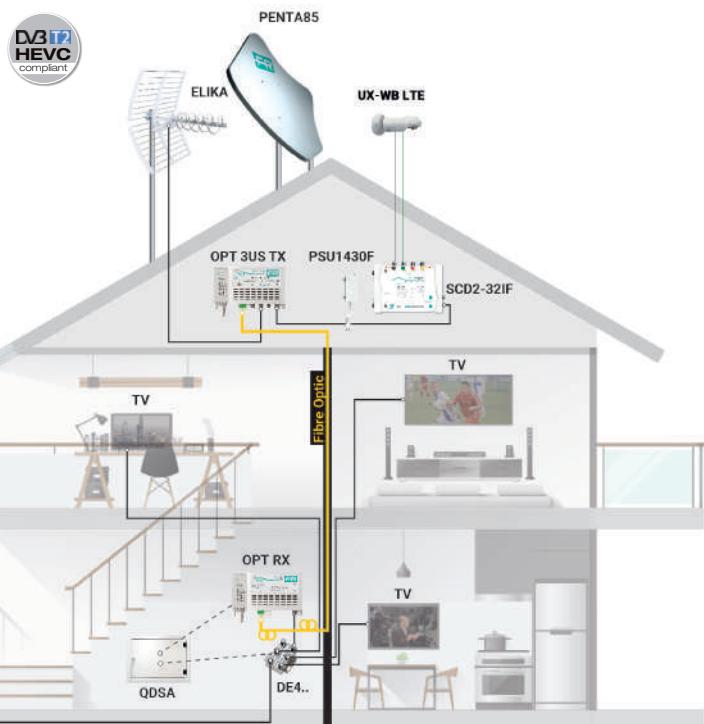
## OPT RX

270655



- **SC/APC optical input with extended range (0dBm to -14dBm)**
- Automatic gain control for TV/SAT signals
- Diagnostic LED for the optical and RF signals

The OPT MBJ solution enables the distribution of digital terrestrial and satellite (IF-IF) signals in all installations.



# OPT-PDM miniaturised passive optical receivers

Fracarro's **OPT PDM** series miniaturised passive receivers revolutionises **FTTH (Fibre To The Home)** systems. Ideal for single dwelling or small installations, their miniature size enables them to be installed directly behind the TV set.

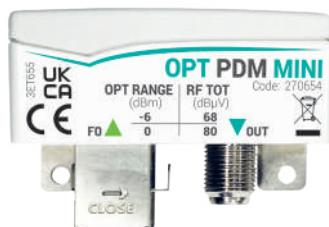


## OPT-PDM key points

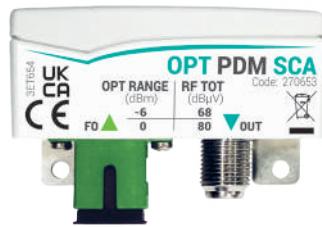
- **Extremely small:** 55 x 18 x 38mm
- **Passive:** they do not require a power supply
- **Full band:** distribution of TV and SAT signals (IF-IF)
- **Electrostatic Protection:** Electrically isolated from the distribution network.

## The advantages of fibre optics

- Allows for technological evolution
- **LTE free:** immune to 5G
- FO vs COAX plant longevity



OPT-PDM-MINI



OPT-PDM-SCA

Item	Code	Optical connector	Wavelength nm	Output RF MHz	Dimensions mm	Package pcs
OPT-PDM-MINI	270654	1 MINI	1270 - 1610	88 - 2350	55 x 18 x 38	4
OPT-PDM-SCA	270653	1 SC/APC	1270 - 1610	88 - 2350	55 x 18 x 38	4



## K OPT-PDM-MINI

270700

NEW

The kit contains:

- 1 x optical transmitter OPT 3US TX (270657)
- 1 x miniaturised VOV4 splitter (287211)
- 5 x MINI 10m optical patch cords (287221)
- 1 x MINI-SC/APC PR ADAPT adapter (287226)
- 4 x OPT-PDM-MINI miniaturised passive optical receivers (270654)

# FTTH passive devices

## Break Out Boxes

Plastic optical distribution enclosure set up for different SC/APC configurations. They are used in **FTTH** **infrastructures** for connecting optical backbones and can be installed both inside and outside buildings, due to the **IP66** degree of protection.

NEW



TDT8



TDT12



TDT24



TDT48

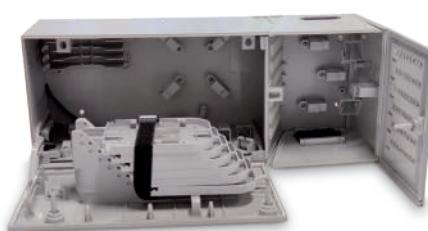
Item	Code	Dimensions mm	Capacity	Material
<b>TDT8</b>	287696	227 x 181 x 54.5	8 connectors	plastic
<b>TDT12</b>	287419	235 x 205 x 60	12 connectors	plastic
<b>TDT24</b>	287697	320 x 240 x 100	24 connectors	plastic
<b>TDT48</b>	287698	420 x 320 x 125	48 connectors	plastic

## Optical Distribution Cabinet

Optical distribution cabinet made of **plastic** or **metal**, available in different sizes, suitable for use as a central **optical distribution cabinet** or an optical splitter cabinet for telecom operators. They are used as a point of access to all services in **FTTH systems**. The cabinets protect the optical connections in the system and manage the fibres to each apartment.



CSOE 2U



CSOE\_P



CSOE\_MINI\_P

Item	Code	Dimensions mm	Material
<b>CSOE 2U</b>	287418	454 x 152 x 180	metal
<b>CSOE_P</b>	287567	450 x 180 x 150	plastic, with optical organiser included
<b>CSOE_MINI_P</b>	287566	332 x 155 x 105	plastic, with optical organiser included

# FTTH passive devices

## Housing cabinets for apartment signal distribution

Optical distribution boxes made of plastic or metal, available in different sizes, suitable for use as an apartment signal distribution box to organise the fibre optic cables coming from the main building optical network. The cabinet can be used to organise the apartment's optical connections and any active and/or passive equipment.



QDSA



QDSA-54-P



QDSA-F



QDSA MINI F

Item	Code	Dimensions mm	Capacity	Material
QDSA	287472	610 x 455 x 136	54 built-in modules	plastic
QDSA-54-P	287570	618 x 430 x 80	54 built-in modules	plastic
QDSA-36-P	287569	430 x 410 x 80	36 built-in modules	plastic
QDSA-F	287565	577 x 407 x 100	54 built-in modules	metal
QDSA MINI F	287517	392 x 307 x 100	36 built-in modules	metal

## Apartment optical termination box

Plastic optical distribution box equipped with 4 x SC/APC connectors with bulkhead adaptors, suitable for use as an **apartment optical termination box** and available with pre terminated 3mm cable G657 A2 of different lengths.

The **Fracarro STOA (rev. 1)** are equipped with Cca, s1a, d0, a1 class cables according to the new CPR regulation. From June 2023, due to the new design, the apartment optical termination box can also be installed on a **DIN rail**.

**STOA 4** with SC/APC connectors on both sides

**STOA 4 LITE** with SC/APC connectors only on the STOA side



STOA 4 BOX



STOA 4 different sizes available

Item	Code	Length m
STOA 4 (box only)	287420	-
STOA 4C 10m	287738	10
STOA 4C 20m	287739	20
STOA 4C 30m	287740	30
STOA 4C 40m	287741	40
STOA 4C 50m	287742	50
STOA 4C 60m	287743	60
STOA 4C 70m	287744	70
STOA 4C 80m	287745	80
STOA 4C 90m	287746	90
STOA 4C 100m	287727	100
STOA 4C 10m LITE	287747	10
STOA 4C 20m LITE	287748	20
STOA 4C 30m LITE	287749	30
STOA 4C 40m LITE	287750	40
STOA 4C 50m LITE	287751	50
STOA 4C 100m LITE	287752	100

## Optical patch cords

Single mode semi-loose tube, single fibre optical patch cords with **SC/APC**, **SC/UPC**, **FC/APC** or **FC/PC** connectors and yellow **LSZH** outer sheath and with **G657 A1** bending radius; some models are also available with **PULL** traction system.

NEW



BR1AA



BR10-PA-PS



BR2SCAPC-FCAPC



BR1-PP

Item	Code	Length m	Connectors	Attenuation for each connector dB	PULL
<b>BR1AA</b>	287522	1	SC/APC - SC/APC	<0.25	-
<b>BR2-AA</b>	289360	2	SC/APC - SC/APC	<0.25	-
<b>BR4-AA</b>	289362	4	SC/APC - SC/APC	<0.25	-
<b>BR5-AA</b>	287690	5	SC/APC - SC/APC	<0.25	-
<b>BR10-AA-PS</b>	287689	10	SC/APC - SC/APC	<0.25	●
<b>BR-20AA-PS</b>	287645	20	SC/APC - SC/APC	<0.25	●
<b>BR10-PA-PS</b>	287687	10	SC/APC - SC/UPC	<0.25	●
<b>BR20-PA-PS</b>	287686	20	SC/APC - SC/UPC	<0.25	●
<b>FC-SC/APC</b>	280011	1	SC/APC - FC/APC	<0.25	-
<b>BR2SCAPC-FCAPC</b>	287427	2	SC/APC - FC/APC	<0.25	-
<b>BR2FC/PC-SC/AP</b>	287521	2	SC/APC - FC/PC	<0.25	-
<b>BR2-PA</b>	289359	2	SC/APC - SC/PC	<0.25	-
<b>BR4-PA</b>	289361	4	SC/APC - SC/PC	<0.25	-
<b>BR5-PA</b>	287688	5	SC/APC - SC/UPC	<0.25	-
<b>BR1-PP</b>	287691	1	SC/UPC - SC/UPC	<0.25	-

Single-mode semi-loose tube, double-fibre optical patch cords with **SC/APC** and **LC/UPC DUPLEX** connectors, yellow **LSZH** outer sheath, with **G657 A1** bending radius.



BR1E-LU-LU-D



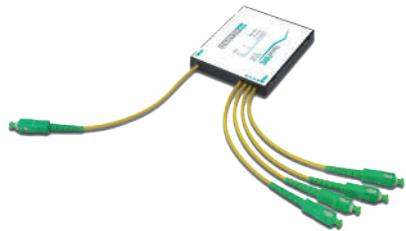
BR2E-SA-LU-D

Item	Code	Length m	Connectors	dB attenuation for each connector
<b>BR1E-LU-LU-D</b>	287693	1	LC/UPC - LC/UPC	<0.25
<b>BR2E-LU-LU-D</b>	287692	2	LC/UPC - LC/UPC	<0.25
<b>BR1E-SA-LU-D</b>	287695	1	SC/APC - LC/UPC	<0.25
<b>BR2E-SA-LU-D</b>	287694	2	SC/APC - LC/UPC	<0.25

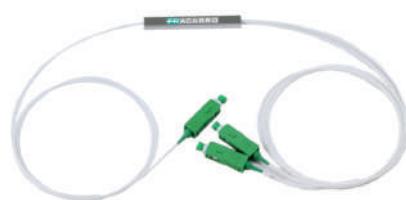
# FTTH passive devices

## PLC Splitters

The **PLC splitters** are based on planar waveguide technology which allows **very low insertion losses**. Suitable for high performance optical distribution in many types of installations and are also available in **miniaturised form**.



PLC 1x4



PLC 1x2 MINI

Item	Code	Description
PLC 1 x 2	287573	2 way splitter
PLC 1 x 4	287455	4 way splitter
PLC 1 x 8	287407	8 way splitter
PLC 1 x 12	287574	12 way splitter
PLC 1 x 16	287408	16 way splitter
PLC 1 x 24	287575	24 way splitter
PLC 1 x 32	287409	32 way splitter
PLC 1 x 64	287410	64 way splitter

Item	Code	Description
PLC 1 x 2 MINI	287576	2 way mini splitter
PLC 1 x 4 MINI	287577	4 way mini splitter
PLC 1 x 8 MINI	287578	8 way mini splitter
PLC 1 x 12 MINI	287579	12 way mini splitter
PLC 1 x 16 MINI	287580	16 way mini splitter
PLC 1 x 24 MINI	287581	24 way mini splitter
PLC 1 x 32 MINI	287582	32 way mini splitter
PLC 1 x 64 MINI	287583	64 way mini splitter

## Fibre optic cables for indoor and outdoor use

Flexible LSZH sheath multifibre cables for indoor use and armored cables for outdoor use. Loose tube, 9/125 singlemode fibre cable.

NEW



OPCAB04



OPC4ARM

Item	Code	Application	Fibre no.	Coil length m
OPC4IN_CCA	287736	Indoor (G657 A2) CCA	4	250
OPC8IN_CCA	287737	Indoor (G657 A2) CCA	8	500
OPC 4 ARM	287344	Outdoor (G657 D)	4	500
OPC 8 ARM	287346	Outdoor (G657 D)	8	500

## WDM diplexers

**Single-mode optical diplexers** with different wavelengths to mix or demix up to 5 wavelengths within the same fibre optic cable. SC/APC connectors and **LSZH** cable with **G657 A1** bending radius.



WDM2



CWDM5

Item	Code	Wavelength nm	Flatness dB	Insertion loss dB
WDM2	287343	1310 - 1490, 1550	<0.5	<0.5
CWDM5	287342	1310 - 1490, 1510, 1530, 1550, 1570	<0.5	<1.5

## Tools and instruments

### FST-V6

287617



### OPTmet+RJ45test

287568

**Portable multifunction optical power meter** with integrated visual fault locator and electrical continuity testing functionality for RJ45 cables.

### OPT METER

287537

**Optical power meter for different wavelengths**, with integrated visual fault locator for checking multi-service systems and fibre optic distribution systems.



### KIT PULIZIA

287536

**Cleaning tool** consisting of a kit for connectors, fibre and optical adapters cleaning wipes, alcohol isopropyl.



# Clamp fastening products for coaxial distribution

**Splitters and taps in the TV and Satellite band (5-2400MHz)** which simplify the installer's work due to the exclusive sealing spring of the central connector and compact dimensions and clamp, without F connector. These products also have **excellent shielding from LTE interference** present in the air.



PA4M



BOM



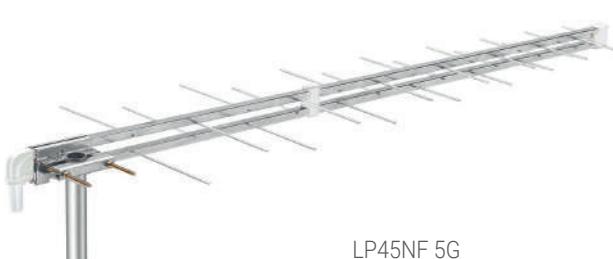
PA2ME

Item	Code	Description
PA2M	287456	2 way splitter
PA3M	287457	3 way splitter
PA4M	287458	4 way splitter
PA5M	287459	5 way splitter
DE110M	287460	1 way tap. 10dB insertion loss
DE114M	287461	1 way tap. 14dB insertion loss
DE118M	287462	1 way tap. 18dB insertion loss
DE122M	287463	1 way tap. 22dB insertion loss
DE210M	287464	2 way tap. 10dB insertion loss
DE214M	287465	2 way tap. 14dB insertion loss
DE218M	287466	2 way tap. 18dB insertion loss
DE222M	287467	2 way tap. 22dB insertion loss
DE412M	287468	4 way tap. 10dB insertion loss
DE414M	287469	4 way tap. 14dB insertion loss
DE418M	287470	4 way tap. 18dB insertion loss
DE422M	287471	4 way tap. 22dB insertion loss
PA2ME	287619	2 way splitter (pole mounting)
PA4ME	287620	4 way splitter (pole mounting)
BOM	287621	Empty box for tap and splitter pole mounting

# Aerials

## LOG Periodical Aerials

Preassembled log-periodic antennas, that are easy to install due to the F connector positioned near the mounting bracket. The mast clamp has been designed so that these aerials **can be installed in a horizontal or vertical polarisation without the need for additional accessories**. Geometrical dipole distribution has been redesigned in order to obtain excellent 5G filtering.



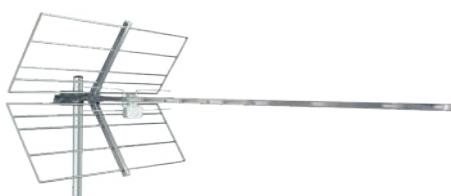
LP45NF 5G



Item	Code	Gain dBi	Description	Multi Packaging pcs
LP45F 5G	216258	12.5	UHF log periodic antenna	15
LP45NF 5G	216252	11.5	UHF log periodic antenna	30
LP45F700MINI	216256	9	UHF log periodic antenna	30

## TAU UHF band Yagi Aerials

IV, V or UHF band Yagi aerials complete with F connector and grid or tube reflectors. Redesigned geometrical director dipole distribution in order to obtain **excellent 5G signal filtering**. Good **mechanical strength** due to 8mm extruded aluminium tubes.



TAU15/45 5G



TAU11/45 5G



Item	Code	Gain dBi	Description	Single/Multi Packaging pcs
TAU15/45 5G	213107	15	UHF aerial, tube reflector	Single plastic bag/Multipackage 8pcs carton
TAU11/45 5G	213108	14.5	UHF aerial, grid reflector	Single plastic bag/Multipackage 10pcs carton

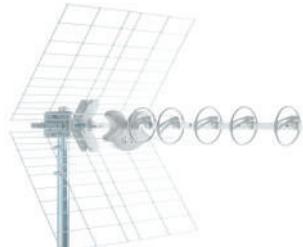
# Aerials

## ALPHA UHF band Loop Yagi Aerials

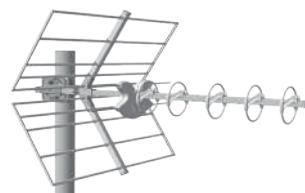
**UHF band Loop Yagi aerial** complete with F connector. No tools required for mounting the ALPHA series due to pre installed elements, quick coupling dipole, reflectors and mast bracket with elevation adjustment and wingnut. **5G filter inserted** in the dipole. **Excellent gain, impedance and directivity**. Exclusive design patented by Fracarro.



ALPHA 3 HD 700



ALPHA 5 HD 700



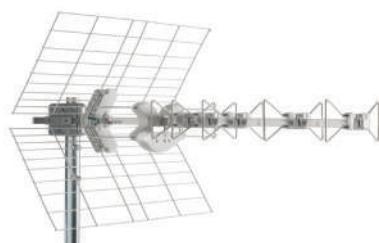
ALPHA5+ LTE700



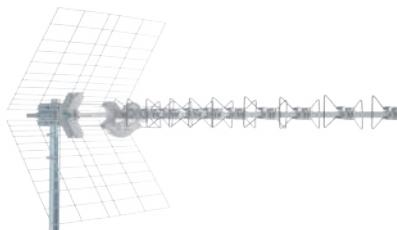
Item	Code	Gain dBi	Description	Single/Multi Packaging pcs
ALPHA 3 HD 700	213239	13	UHF premounted Loop Yagi aerial	Single tray/Multipackage 10pcs carton
ALPHA 5 HD 700	213240	14	UHF premounted Loop Yagi aerial	Single tray/Multipackage 10pcs carton
ALPHA5+ LTE700	213225	14.2	UHF premounted Loop Yagi aerial	Single carton/Multipackage 12pcs carton

## BLU UHF band Aerials

**UHF band biconical aerials** complete with F connector and grid reflectors. No tools required for mounting the BLU series due to pre installed elements, quick coupling dipole, reflectors and mast bracket with elevation adjustment and wingnut. **5G filter inserted in the dipole**. High gain, optimum impedance adaptation and **excellent directivity**.



BLU5HD 5G



BLU10HD 5G



Item	Code	Gain dBi	Description	Single/Multi packaging pcs
BLU5HD 5G	217914	13.5	High gain UHF aerial	Single tray/Multipackage 10pcs carton
BLU10HD 5G	217915	15.5	High gain UHF aerial	Single tray/Multipackage 10pcs carton
BLU22HD 5G	217916	18	Very High gain UHF aerial	Single carton

# Aerials

## ELIKA UHF band Aerials

**ELIKA UHF band aerials** with F connector, high gain, extraordinary directivity and almost total absence of the lateral lobes.

**Exclusive Elika design patented by Fracarro.** Pre installed elements, quick coupling dipole and mast attachment with elevation adjustment as standard with large wingnut to **complete assembly without the need for tools**. 5G filter inserted into the dipole. ELIKA PRO is an active helical UHF band aerial complete with F connector, LED alignment system and automatic gain control (AGC).



ELIKA 700



ELIKA PRO 700 C



Item	Code	Gain dBi	Description	Single/Multi Packaging pcs
ELIKA 700 P	213228	17	Loop Yagi UHF antenna	Single plastic bag/Multipackage 10pcs carton
ELIKA 700 C	213229	17	Loop Yagi UHF antenna	Single carton/Multipackage 6pcs carton
ELIKA PRO 700 C	213231	47	Loop Yagi UHF active antenna	Single carton/Multipackage 6pcs carton

## FILTERS



MX Filter 700



LTE FILTER 48

Item	Code	Insertion loss dB	Selectivity 704MHz dB
LTE FILTER 48	226715	<1.5	>30
MX Filter 700	226716	<1	>35

# High selectivity TV compact headends

Range of programmable **FRPRO** headends designed with high selectively filtering, to convert and amplify DVB-T and DVB-T2 digital terrestrial channels in the VHF and UHF bands. The headends are equipped with automatic control of the input power with a high dynamic range and LTE filter self-adapting for each UHF input. The configuration is done quickly from the keyboard and display, while the security code ensures maximum protection against tampering.

REV 01



## FR PRO LIGHT HD

287523

- **4 inputs:** FM, VHF + DAB, UHF 1 and UHF 2
- **Output level 108dB $\mu$ V** for each filter (120dB $\mu$ V total)
- **15 filters**, from 1 to 6 channels, each with 3 levels of selectivity



## FR PRO EVO HD

287434

- **5 inputs:** FM and 4 flexible VHF/UHF
- **Output level 118dB $\mu$ V** for each filter (>130dB $\mu$ V total)
- **32 filters**, from 1 to 6 channels, each with 8 levels of selectivity
- **Reduces the noise when a channel is switched off** by broadcaster, so as not to affect adjacent channels
- SD slot for saving the configuration

# High selectivity TV compact headends

NEW

The FRPRO series headends, ideal for equalising channels in areas where the signals are received from different directions with different levels between them, comprises of models that integrate new features:

- **Self Equalising:** the product scans the signals received at the inputs and amplifies them automatically according to the detected channels, equalising them at the output.
- **Repeated Mux Conversion:** in case of channels present on multiple inputs, you can choose whether to keep only the higher power channel, or convert the lower power channel to free 5G and 4G LTE frequencies (694 - 862MHz).



## eMAP3 5G

223777

Self programming mast amplifier for small and medium sized systems. The mast amplifier does not need to be programmed as the channel scan starts when the product is powered up and after a power failure lasting more than a few seconds. The mast amplifier is complete with F type power supply with F connectors included.

### Key points

- 3 flexible VHF/UHF broadband inputs
- Repeated Mux Conversion function that can be activated with dip switches
- Output level **90dB $\mu$ V** for each filter (102dB $\mu$ V total) with ACG (Automatic Gain Control)
- Integrated 5G filter, analyses E05 - E48 muxes in the 174 - 694MHz band



## FRPRO LIGHT 5G

287629

Indoor programmable headend with **separate power supply**. High selectively filtering to convert and amplify DVB-T and DVB-T2 digital terrestrial channels in the VHF and UHF bands. The **self equaliser function** starts when the product is powered up and after a power failure lasting more than a few seconds. The headend unit is complete with **F type power supply with F connectors** included.

### Key points

- 3 flexible VHF/UHF broadband inputs with **selectable remote power supply**
- **Self Equalising and Repeated Mux Conversion functions** that can be activated from the keyboard
- Output level **108dB $\mu$ V** for each filter (120dB $\mu$ V total) with ACG
- **32 filters**, from 1 to 6 channels, each with 8 levels of selectivity
- Integrated 5G filter, analyses muxes E05 - E48 in band 174 - 694MHz
- Real-time reading of input signal strength

# Dishes and LNBs

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## PENTA DIGIT Series

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**DIGIT** RAL 7035 white (code 211101)

**DIGIT-G** RAL 7011 gray (code 211102)

**DIGIT-R** RAL 8012 red (code 211103)

- Gain equivalent to a **68cm dish**
- Aluminum reflector
- Reinforced steel bracket included
- **Patented by Fracarro**
- Single packaging



## PENTA 85 Series

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**PENTA 85** RAL 7035 white (code 211201)

**PENTA85G** RAL 7011 gray (code 211202)

**PENTA85R** RAL 8012 red (code 211203)

- Gain equivalent to a **85cm dish**
- Aluminum reflector
- Reinforced steel bracket included
- **Patented by Fracarro**
- Single packaging



## PO85AS

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287411

**85cm dish.**

- Aluminum reflector
- Reinforced steel bracket included
- Single packaging.



## UX-WB LTE

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287541

**Wideband LNB equipped with 2 outputs** with separate H and V polarities.

- It enables the user to distribute the content of one satellite using only 2 cables
- **Compatible with SCD2-5..16W series multiswitches**

# SCD2 Solutions (dCSS-dSCR)

LNB and multiswitches with SCD2 technology (dCSS/dSCR). Each output can supply up to 4 SCR SAT decoders that also offer the 12 SCD2 frequencies necessary for the operation of the SKY decoder. The multiswitches are all equipped with AGC to keep the output level constant.



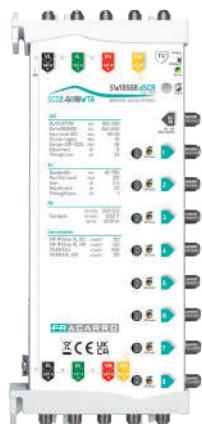
## SCD2-16 LNB

287421

LNB with one IF-IF output starting in static mode with the 24 main TS available on Hotbird 13°E.



SWI8504 DSCR UK



SWI8508 DSCR UK



DSCR-502W



DSCR-508W

## SWI8504 DSCR UK

271178

dSCR switch with 4 satellite inputs/outputs and 1 TV input/output, 4 subscriber connections and 16 SCD2 dSCR tuners simultaneously for each output.

Compatible with both conventional LNB (UX-QT LTE) and wideband LNB (UX-WB LTE). Universal standard: compatible both with EN50494/EN50607 used by SKY Italia and with SkyUK standards.

## SWI8508 DSCR UK

271177

dSCR switch with 4 satellite inputs/outputs and 1 TV input/output, 8 subscriber connections and 16 SCD2 dSCR tuners simultaneously for each output.

Compatible with both conventional LNB (UX-QT LTE) and wideband LNB (UX-WB LTE). Universal standard: compatible both with EN50494/EN50607 used by SKY Italia and with SkyUK standards.

## dSCR-5...W Series

SCD2 cascadable multiswitches with 5 inputs/outputs: QUATTRO or WIDEBAND mode selectable, passive TV input and SCD2, dSCR, SCR or Legacy outputs; flexible powering due to the innovative FVM system (Flexible Voltage Management)

Item	Code	Description
dSCR-502W	271184	SCD2-5216W: 5 inputs and 2 user outputs SCD2, dSCR, SCR or Legacy
dSCR-504W	271180	SCD2-5416W: 5 inputs and 4 user outputs SCD2, dSCR, SCR or Legacy
dSCR-506W	271183	SCD2-5616W: 5 inputs and 6 user outputs SCD2, dSCR, SCR or Legacy
dSCR-508W	271179	SCD2-5816W: 5 inputs and 8 user outputs SCD2, dSCR, SCR or Legacy

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