

FRACARRO

THE ADVANTAGES OF OPTICAL FIBER SOLUTIONS

The use of a system with **FTTH technology** has many advantages, for example to guarantee sustainable costs and to ensures that the system is "ready for future technological developments", while ensuring equal opportunities to the users in terms of enjoying the digital contents. These values represent a wide series of interesting advantages:

- One single network to distribuite many new services.
- Reduction costs for maintenance activities and for technological implementation.
- Open and **neutral platform** to support every type of application.
- The simplification of the optical network means aesthetically more pleasing buildings.
- The technological structure improvement increases the building's value.

FRACARRO PROFESSIONAL SERVICES

Choosing a Fracarro hospitality solution means having access to cutting-edge technologies, **with a range of solutions** suitable for any type of installation. Fracarro also provides a series of important services to support installers.

DESIGN SUPPORT

Our technical engineers are available to design the system layout, complete with a materials list.

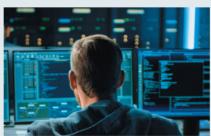
PHONE SUPPORT

Monday to Friday, from 8:30am to 5:30pm CEST, for any technical inquiries, product information, or remote system programming.

REMOTE COMMISSIONING AND TESTING

For system commissioning, testing, headend setup and so on, Fracarro provides skilled technicians, available for remote technical consuleance, as well (the cost of this services must be quoted and agreed and it depends from the activity requested from the customer).







PASSIVE COMPONENTS

TDT - Head Terminal Box

The HEAD TERMINAL BOX (also referred to as TDT or STOM - Riser Optical Termination Box) serves the purpose of housing and terminating the optical fibers of building services originating from the roof, such as Terrestrial Digital signals like DVB-T2/T, DVB-S2 Satellite signals, or those from Wireless operators. It must accommodate the fibers from the Building Optical Cabinet and is suitable for both indoor and outdoor applications (IP66 rated).



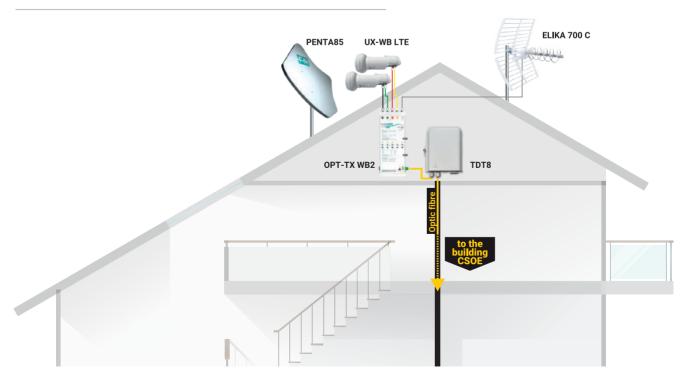
- **IP66** rated protection
- Accessories included





TDT24

ITEM	CODE	DIMENSIONS mm	CAPACITY	MATERIAL
TDT8	287696	227x181x54,5	8 connectors	plastic
TDT12	287419	235x205x60	12 connectors	plastic
TDT24	287697	320x240x100	24 connectors	plastic
TDT48	287698	420x320x125	48 connectors	plastic



CSOE - Building Optical Main Cabinet and ROE - Building Optical Splitting Box

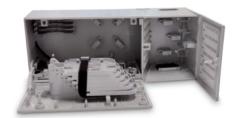
Placed in a suitable technical room, the **Building Optical Main Cabinet** or CSOE (Centralized Optical Distribution Cabinet) **serves as the access point where all the main services available in the building (Digital Terrestrial TV, Digital Satellite signals, ISP providers, etc.) converge**. From this point, optical fibers extend to connect all the apartments in the building. The services from each ISP provider and the Terrestrial/Satellite signals each reach a dedicated ROE (Building Optical Splitting Box) to be distributed to the various apartments through the Building Optical Main Cabinet (CSOE).



- Compatible solution for installation in a 19-inch rack (item 287418
 CSOE 2U)
- For rack installation, the **OPB24IR and OPB48IR optical splitter** tray can also be used.
- For ROE, PLC optical splitters can be used (see page 9 for reference).



CSOE 2U



CSOE_P

ITEM	CODE	DIMENSIONS mm	MATERIAL
CSOE 2U	287418	454x152x180	metal
CSOE_P	287567	450x180x150	plastics, with optical organiser included
CSOE_MINI_P	287566	332x155x105	plastics, with optical organiser included
OPB24IR	289404	240x482x88	metal optical drawer, up to 24x SC optical adapters included
OPB48IR	287757	240x482x88	metal optical drawer, up to 48x SC optical adapters included



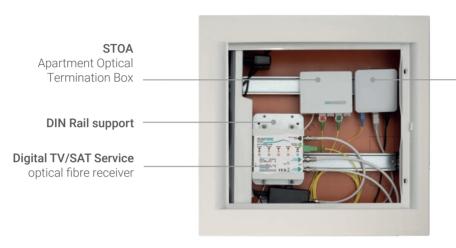
CSOE_MINI_P



PASSIVE COMPONENTS

QDSA - Apartment Signal Distribution Cabinet

Optical distribution wallboxes made of **plastics or metal**, available in various sizes, suitable for use as Apartment Signal Distribution Cabinet (QDSA), to which optical fibre cables from the Main Building Optical Cabinet (CSOE) are connected. **Inside the QDSA**, **the pre-terminated STOAs** and active and passive devices are organized.



DATA ServiceONT equipped with optical fibre input

QDSA







QDSA54P QDSA F QDSA MINI F

ITEM	CODE	DIMENSIONS	CAPACITY	MATERIAL
QDSA	287472	mm 610x455x136	Recessed pre-fitted 54 modules	plastic
QDSA36P	287758	430x410x80	Recessed 36 modules	plastic
QDSA54P	287759	618x430x80	Recessed 54 modules	plastic
QDSA-F	287565	577x407x100	Recessed 54 modules	metal
QDSA MINI F	287517	392x307x100	Recessed 36 modules	metal

DIN Rail Supports

DIN rail supports for installing products within the Apartment Signal Distribution Panel (QDSA) or racks.

Available in various sizes, including modular options.

ITEM	CODE	DESCRIPTION
SUPDIN140	271201	14cm DIN Rail Support
SUPDIN265	271202	26.5cm DIN Rail modular support suitable for installation of different size products

STOA Apartment Optical Termination Box

It is the designated termination point of the FTTH multiservice system and should be installed in close proximity to the residential units, typically within the Apartment Signal Distribution Panel (QDSA). These plastic optical distribution boxes are equipped with 4x SC/APC adapters with shooters and are suitable for use as Apartment Optical Termination Boxes. They are available with pre-terminated G657 A2 3mm cables in various lengths.

• Fracarro STOAs are equipped with Cca, s1a, d0, a1 class cables according to the new CPR regulations.



- STOA 4 version with **SC/APC connectors on both ends**
- STOA 4 LITE version with SC/APC connectors only on the plastic box side
- Dimensions: 100 x 29 x 80 mm



STOA 4 in various lengths



STOA 4 BOX

ITEM	CODE	LENGTH m
STOA 4 (only box)	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
STOA4C 100m	287727	100
STOA4C 10m LITE	287747	10
STOA4C 20m LITE	287748	20
STOA4C 30m LITE	287749	30
STOA4C 40m LITE	287750	40
STOA4C 50m LITE	287751	50
STOA4C 100m LITE	287752	100

PASSIVE COMPONENTS

Optical Attenuators

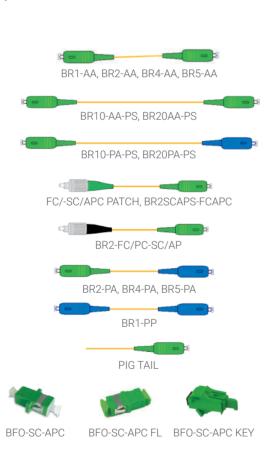
In-line optical fibre attenuators equipped with SC/APC connectors.



ITEM	CODE	DESCRIPTION
OPTATT14dB	287237	14dB optical attenuator (SC/APC connector)
OPTATT7dB	287238	7dB optical attenuator (SC/APC connector)
OPTATT3dB	287239	3dB optical attenuator (SC/APC connector)

Single fibre optical patch cords

Singlemode, 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**.



ITEM	CODE	LENGTH m	CONNECTORS	PULL	
BR1-AA	287522	1	SC/APC -SC/APC	-	
BR2-AA	289360	2	SC/APC -SC/APC	-	
BR4-AA	289362	4	SC/APC -SC/APC	-	
BR5-AA	287690	5	SC/APC -SC/APC	-	
BR10-AA-PS	287689	10	SC/APC -SC/APC	•	
BR-20AA-PS	287645	20	SC/APC -SC/APC	•	
BR10-PA-PS	287687	10	SC/APC -SC/UPC	•	
BR20-PA-PS	287686	20	SC/APC -FC/APC	•	
FC-SC/APC Patch	280011	1	SC/APC -FC/APC	-	
BR2SCAPS-FCAPC	287427	2	SC/APC -FC/APC	-	
BR2FC/PC-SC/AP	287521	2	SC/APC -SC/PC	-	
BR2-PA	289359	2	SC/APC -SC/PC	-	
BR4-PA	289361	4	SC/APC -SC/PC	-	
BR5-PA	287688	5	SC/APC -SC/UPC	-	
BR1-PP	287691	1	SC/UPC -SC/UPC	-	
PIG TAIL	287426	1	SC/APC	-	
BFO-SC-APC	289349	SC/APC coupler			
BFO-SC-APC FL	287593	Flangless SC/APC coupler, single-mode connector			
BFO-SC-APC KEY	287595	Flangless SC/APC coupler for mounting on Keystone adaptors			

Double fibre optical patch cords

Singlemode, 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.



BR2E-SA-LU-D

ITEM	CODE	LENGTH m	CONNECTORS
BR1E-LU-LU-D	287693	1	LC/UPC - LC/UPC
BR2E-LU-LU-D	287692	2	LC/UPC - LC/UPC
BR1E-SA-LU-D	287695	1	SC/APC -LC/UPC
BR2E-SA-LU-D	287694	2	SC/APC -LC/UPC

Optical Splitters

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









PLC 1x12 MINI



PLC 1x4

ITEM	CODE	LENGTH m
PLC 1x2 MINI	287576	2 way mini splitter
PLC 1x4 MINI	287577	4 way mini splitter
PLC 1x8 MINI	287578	8 way mini splitter
PLC 1x12 MINI	287579	12 way mini splitter
PLC 1x16 MINI	287580	16 way mini splitter
PLC 1x24 MINI	287581	24 way mini splitter
PLC 1x32 MINI	287582	32 way mini splitter
PLC 1x64 MINI	287583	64 way mini splitter
PLC 2x8 MINI	287753	2in to 8out mini splitter
PLC 2x16 MINI	287754	2in to 16out mini splitter
PLC 2x32 MINI	287755	2in to 32out mini splitter

CODE	LENGTH m	
287573	2 way splitter	
287455	4 way splitter	
287407	8 way splitter	
287574	12 way splitter	
287408	16 way splitter	
287575	24 way splitter	
287409	32 way splitter	
287410	64 way splitter	
	287573 287455 287407 287574 287408 287575 287409	

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. **Indoor cables Cca, s1a, d0, a1 class according to the CPR regulation**. The outdoor cables are armored with aramid yarns.









OPC4ARM

ITEM	CODE	APPLICATION	FIBRE No.	FIBRE LENGTH m
OPC4IN_CCA	287736	Indoor (G657 A2)	4	250
OPC8IN457CCA	287795	Idoor (G657 A2)	8	457
OPC4ARM457	287814	Outdoor (G652 D)	4	457
OPC8ARM457	287815	Outdoor (G652 D)	8	457

ACTIVE DEVICES

Digital Terrestrial and Full Satellite distribution

HOME FIBRE includes a series of optical transmitters and receivers designed to convert and distribute all legacy satellite polarities, digital terrestrial TV signals, and radio signals via FTTH fiber optic infrastructure. The HOME FIBRE transmitter series includes multiple models, each operating at different optical wavelengths, facilitating the distribution of up to four complete satellite positions over a single optical fiber using CWDM (Coarse Wavelength Division Multiplexing) technology.

HOME FIBRE transmitters advantages

- Installation of traditional type satellite dish
- Transmitter equipped with AGC, allowing the use of dishes with various diameters.
- Cascade solution typical of MSW systems Up to 21dB optical path attenuation
- Easy and intuitive installation
- Transmission of the complete terrestrial band



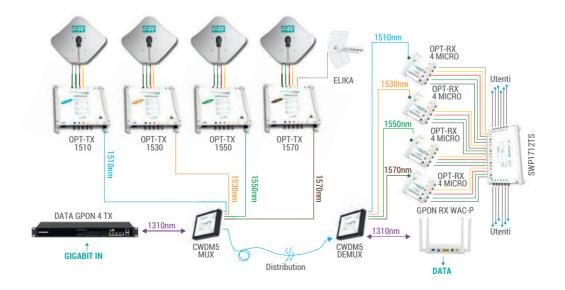
ITEM	CODE	DESCRIPTION	
OPT-TX RP	270652	Optical transmitter equipped with 5 separate independent inputs (VL, VH, HL, HH and TV). Output power 7dBm @ 1310nm. Remote powered version	
OPT-TX DT	Optical transmitter equipped with 5 separate independent inputs (VL, VH, HL, HH and TV). 270694 power 7dBm @ 1310nm. Remote powered with F connector. Recommended power suppled PSU1430F/UK (code 287647) or PSU1430F (code 287614)		
KIT OPT-TX RP	270651	KIT composed by OPT-TX RP remote powered optical transmitter and PSU1430F (287614) posupply.	
OPT-TX 1510	270667	Optical transmitter equipped with 5 separate independent inputs (VL, VH, HL, HH and TV). Output power 7dBm @ 1510nm.	
OPT-TX 1530	270668	Optical transmitter equipped with 5 separate independent inputs (VL, VH, HL, HH and TV). Output power 7dBm @ 1530nm.	
OPT-TX 1550	Optical transmitter equipped with 5 separate independent inputs (VL, VH, HL, HH and TV). Ou power 7dBm @ 1550nm.		
OPT-TX 1570	270670	Optical transmitter equipped with 5 separate independent inputs (VL, VH, HL, HH and TV). Output power 7dBm @ 1570nm.	

HOME FIBRE receivers key points

- Compact size for easy installation
- Multicolour **LED** for receiver diagnostics
- Ideal for managing TV/SAT signals in fibre optic systems
- Compatible with dCSS, SCR and dSCR systems (SKY UK)



ITEM	CODE	DESCRIPTION
OPT-RX 4 MICRO	270662	Optical receiver equipped with 5 independent outputs for VL, VH, HL, HH and TV. Extended optical receiving range (-8dBmo to -14dBmo). Multifunction LEDs and very low current consumption.
OPT-RX QD MICRO	270661	Optical receiver equipped with four universal and independent outputs (mixed SAT+TV+FM). Extended optical receiving range (-8dBmo to -14dBmo). Multifunction LEDs and very low current consumption. Auxiliary input connector for external power supply.
OPT-RX SCD2 MICRO	270660	Optical receiver equipped with four outputs, two with dCSS and mixed TV+FM signal and two with SAT Legacy and mixed TV+FM. Extended optical receiving range (-8dBmo to -14dBmo). Multifunction LEDs and very low current consumption. SCR/dCSS protocol compliance.
OPT-RX dSCR UK	270658	Optical receiver equipped with four outputs, two with dSCR UK and mixed TV+FM signal and two with SAT Legacy and mixed TV+FM. Extended optical receiving range (-8dBmo to -14dBmo). Multifunction LEDs and very low current consumption. dSCR UK protocol protocol compliance.



ACTIVE DEVICES

Digital Terrestrial and Full Satellite distribution

WIDE FIBRE is our latest range of optical transmitters and receivers, exclusively 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 guality of the signals available from all optical receivers. Our range now includes solutions to distribute one or two full satellite positions plus terrestrial signals at the same time.

WIDEBAND optical transmitters advantages

- 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 WB2

OPT-TX WB1

OPT-RX WB2 SCD2

OPT-RX WB2 HV

OPT-RX WB1 SCD2

OPT-RX WB1 HV

ITEM	CODE	DESCRIPTION	
OPT-TX WB1	270901	Wideband optical transmitter for 1 satellite + TV	
OPT-RX WB1 SCD2	270902	rideband optical receiver for 1 satellite. 2 x SCR/dCSS/dSCR/Legacy + TV outputs	
OPT-RX WB1 HV	270903	Wideband optical receiver for 1 satellite. Vertical, Horizontal wideband outputs + independent TV	
OPT-TX WB2	270904	Wideband optical transmitter for 2 satellites + TV	
OPT-RX WB2 SCD2	270906	Wideband optical receiver for 2 satellites. 2 x SCR/dCSS/dSCR/Legacy + TV outputs	
OPT-RX WB2 HV	270905	Wideband optical receiver for 2 satellites. Vertical, Horizontal wideband outputs for each SAT + independent TV	

Digital Terrestrial and IF-IF Satellite distribution

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 MBJ key points

- "Plug&Play": no adjustments required
- **A.B.L.A technology**: in transmitters, the optical signal output level remains constant if the input TV and SAT RF levels are between 60dBuV and 85dBuV:
- The **OPT RX** optical receiver is equipped **with Automatic Gain Control** (AGC), maintaining a constant RF output level if the received optical signal is within its working range.
- Non-propagating or flame-retardant ABS plastic protective shell (Class V0)
- Very low power consumption;
- A.B.L.A circuit operation LEDs for immediate diagnosis of input RF levels in the transmitters;
- Diagnostic LEDs for correct optical signal and presence of RF level in the OPT RX receiver
- Wall mounting or DIN rail mounting.







ITEM	CODE	DESCRIPTION
OPT 3US TX	270657	Plug&Play optical transmitter equipped with 3 separate independent inputs: VHF, UHF and SAT (IF-IF). SC/APC optical output and RF Test output. Optical power 5dBm@1550nm. Up to 1 x 32 optical splits when used with OPT-RX receiver. Remote power enable on UHF input.
OPT T+S TX PLUS	270656	Plug&Play optical transmitter equipped with 1 TV/SAT (IF-IF) mixed input. SC/APC optical output and RF Test output. Very high optical power output 9dBm@1550nm. Up to 1 x 64 optical splits when used with OPT-RX receiver. Remote power enable on TV+SAT input.
OPT RX	270655	Plug&Play optical receiver equipped with SC/APC optical input (from 0dBm to -14dBm extended optical input range). Automatic Gain Control for TV/SAT RF output level stabilization. It can be also used as alternative of OPT RX TV (270696). Diagnostic LED for the optical and RF signals .

ACTIVE DEVICES

Digital Terrestrial distribution

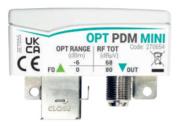
Fracarro's OPT-PDM series miniaturised passive receivers revolutionises FTTH (Fibre To The Home) systems. Ideal for single dwelling or small installations, their miniature size enables them to be installed directly behind the TV set.

Key points

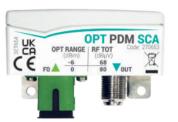
- Extremely small: 55 x 18 x 38mm
- Passive: no power supply required
- Fullband: distribution of TV and SAT signals (IF-IF)
- Electrostatic protection: electrically isolated from the
- distribution network.

Fibre optic advantages

- · Allows for technological evolution
- LTE free: immune to 5G interferences
- F.O. vs coax plant longevity

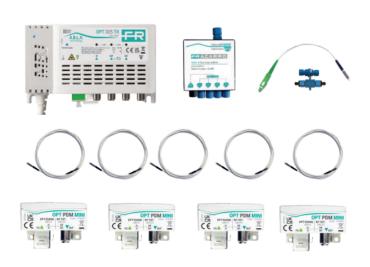


OPT-PDM-MINI



OPT-PDM-SCA

ITEM	CODE	OPTICAL CONNECTOR	WAVELENGTH nm	OUTPUT RF MHz	DIMENSIONS nm	PACKAGE pcs
OPT-PDM-MINI	270654	1 MINI	1270-1610	88-2350	55x18x38	4
OPT-PDM-SCA	270653	1 SC/APC	1270-1610	88-2350	55x18x38	4



K OPT-PDM-MINI code 270700

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 adaptor (287226)
- 4 x OPT-PDM-MINI miniaturised passive optical receivers (270654)

VIDEO INTERCOM OVER FTTH

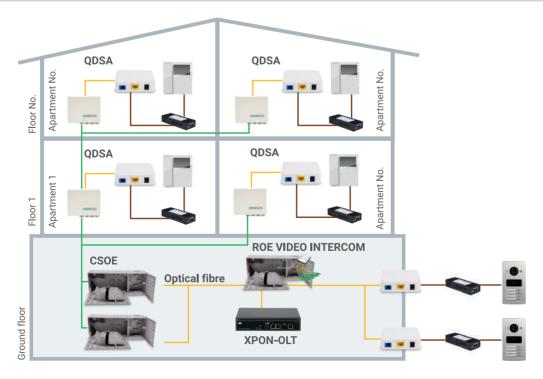
GPON solution for video intercom

Thanks to the capabilities of GPON active devices, Fracarro has developed an innovative solution to integrate **video intercom systems into FTTH fibre optic networks**, providing significant advantages in terms of system simplification and cost reduction. The solution allows for the connection of **up to 128 devices** (video intercoms and external units) and enables the management of additional services:

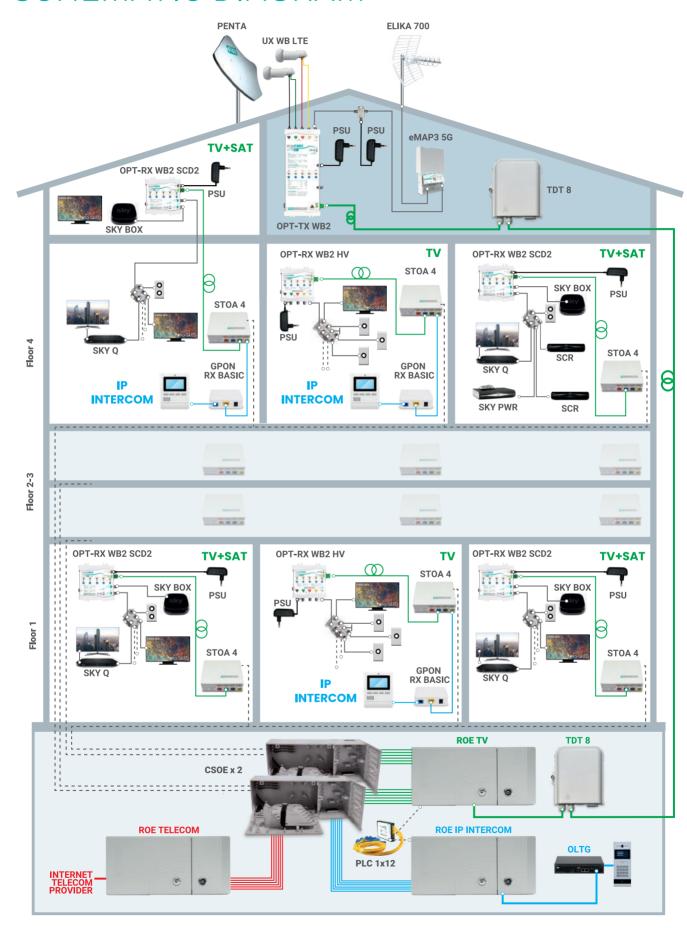
- Up to 30 cameras for video surveillance
- Access control for common areas
- Monitoring of special systems: photovoltaic systems, air conditioning and heating systems, emergency lights, home automation, Building Management Systems and so on.



ITEM	CODE	DESCRIPTION	
OLTG-1P2G1S	287787	OLT line optical transmitter for data management on 9/125 single-mode optical fiber	
GPON RX BASIC	287616	NT network optical receiver for data reception via optical fiber. Includes PoE Injector	
CSOE_P	287567	IP54 degrees protection Building Main Optical Cabinet for FTTH fibre optic networks.	
PLC 1x32 MINI	287582	Miniaturized 32-way PLC splitter for building optical splitting box, utilizing planar waveguide technology that ensures very low insertion loss.	
BR2-PA	289359	2-meter single-mode optical fiber patch cord with SC/APC to SC/PC connectors	
BR2-AA	289360	2-meter single-mode optical fiber patch cord with SC/APC connectors	



SCHEMATIC DIAGRAM



PROFESSIONAL FIBER FUSION SPLICER

FST-V6 professional optical fiber fusion splicer

The technology used in the **FST-V6 fusion splicer** (code 287617) significantly reduces splicing and heating times. The **six-motor precision core alignment** and advanced contour inspection technology ensure accurate splicing and loss estimation. All menus are accessible via a 5" LCD touch screen, and the splicing procedure is fully automated, optimizing the installation time of the system.





Key advantages

- Automated splicing procedure using a chipset to minimize optical fusion loss
- High-precision electrodes with "Digital Analysis Core Alignment System" for fusion are control
- **6-motor** active core alignment
- 5" high-resolution touch screen display
- Supports multiple types of optical fibers: SM, MM, DS, NZDS
- Simplified graphical user interface
- Optical zoom: up to 500x fibre magnification
- Accessories included: battery, cleaver, cable stripper,
 3-hole fiber stripper, power adapter, spare pair of electrodes, instruction manual, hard case, power supply.



Optical Fibre Cleaning tool

Cleaning tools for fibers (SM and 9/125um) and connectors (SC/APC, SC/PC). The kit includes wipes, cleaning sticks, flashlight, and cleaning spray.

ITEM	CODE	DESCRIPTION
CLEANING KIT	287536	Optical Cleaning tool kit



INSTRUMENTS

Optical Meters

Fracarro's equipment also includes a **range of multimeters** for the correct installation of fibre optic systems.





OPTmet+RJ45test

OPT METER

ITEM	CODE	DESCRIPTION	
OPTmet+RJ45test	287568	Portable multifunction optical power meter with Visual Fault Locator and electrical continuity testing functionality for RJ-45 cables.	
OPT METER	287537	Optical multimeter for various wavelengths, with an integrated source for verifying multiservice systems and fiber optic distributions.	

Certifiers

The Fracarro measurement instruments portfolio is complemented by a range of **optical certifiers**, consisting of a source and a meter with AWD functionality, which automatically recognizes the optical wavelength used between the two devices.

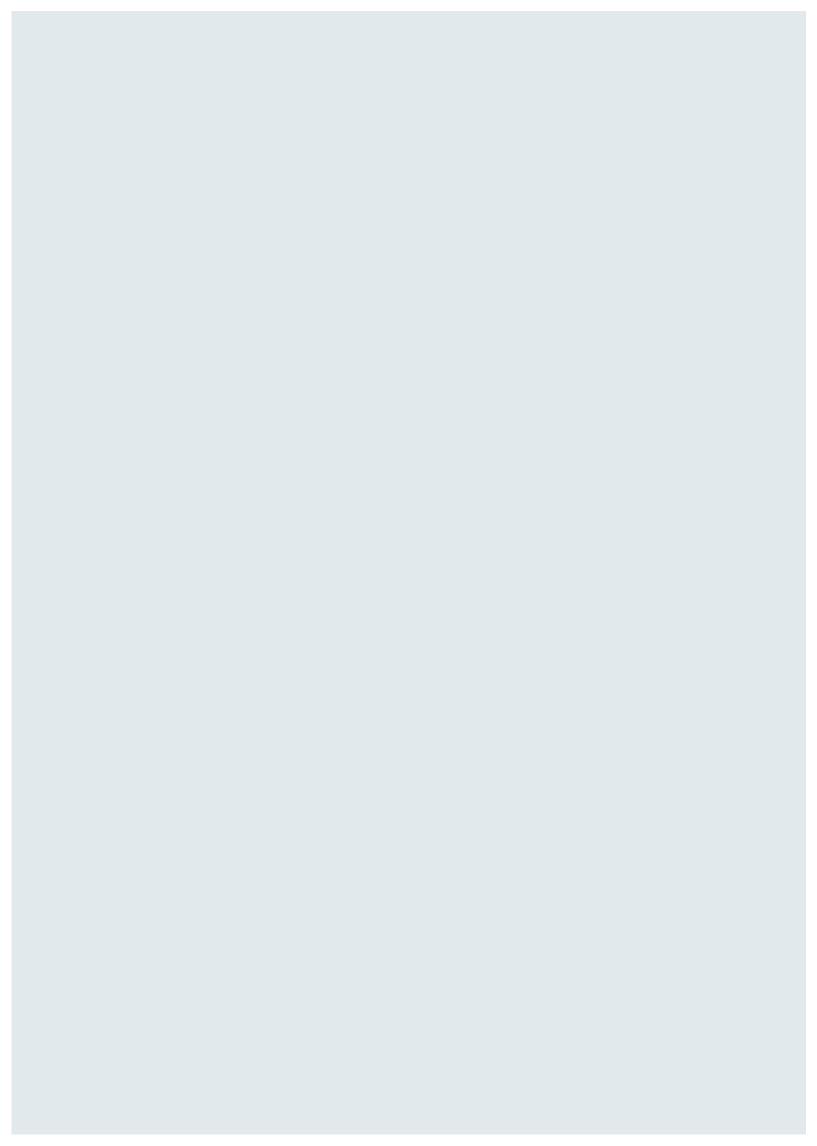




CERT-OPT-METER

CERT-OPT-SOURCE

ITEM	CODE	DESCRIPTION
CERT-OPT-SOURCE	287589	Certified optical source suitable for verifying and certifying FTTH multiservice installations and various fiber optic distributions. It's equipped with two outputs with two light sources on each port, managing a total of four wavelengths in a single device.
CERT-OPT-METER	287590	Power meter suitable for verifying and certifying FTTH multiservice installations and various fiber optic distributions. Selectable wavelengths (850-1300-1310-1490-1550-1625nm). Measures absolute or relative optical power.





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