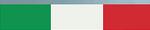# IPTV & TVSAT SOLUTIONS

Modular headends
Compact headends
Professional services

Italian innovation SINCE 1933

FRACARRO

TECHNOLOGY

Choosing **Fracarro solutions** means gaining access to cutting-edge technology that delivers outstanding communication services for your system.

All Fracarro headends utilize **advanced transmodulation techniques** to convert signals into the optimal format for any television, regardless of its processing capabilities. These solutions are compatible with **all transmission media**, including coaxial cable, IPTV, and wideband optical fiber networks.

FRACARRO SOLUTIONS

Fracarro can design the **ideal communication infrastructure tailored to the unique needs of any environment**, ensuring system compatibility while customizing the client experience for complete satisfaction.

The range includes **modular and compact headends** capable of supporting systems of any scale - small, medium, or large - in settings such as hotels, resorts, campsites, schools, university campuses, hospitals, prisons, ships, and institutional buildings. This offering is further enhanced by additional services, including dedicated information channels.

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GALAXIA
HIGH-DENSITY SOLUTIONS

GX-BOX-DP-SFP

Ideal for **medium to large installations**, where the demand for customized content is higher, the **Galaxia** solution enables the distribution of a wide range of satellite, digital terrestrial, and CATV television services, sourced from terrestrial broadcasts, cable, or HDMI inputs.

Galaxia can also manage **IPTV programs**, making it particularly suitable for high-efficiency **GPON** (Gigabit Passive Optical Network) fiber optic systems.

GALAXIA ADVANTAGES

Remote Management
The native full-IP web interface allows configuration and monitoring both locally and remotely.

Content Sharing
All received programs can be shared with other modules, enabling flexible and mixed configurations.

Service Continuity
Ensures maximum reliability and uninterrupted program distribution thanks to the built-in dual power supply.

IPTV Connectivity
Supports up to 120 IPTV multicast groups, both inbound and outbound, making it ideal for GPON networks.

External Content Distribution
Content from satellite decoders, laptops, media players, DVD players, and more can be easily added using the HDMI input module, distributing it across coaxial or IPTV infrastructure.

Content Decryption
Encrypted programs can be decrypted using the appropriate PROCAM multi-decrypt module with professional smart cards, or via dedicated modules with Common Interface (CI) slots.

GALAXIA

GX-BOX-DP-SFP

The **GALAXIA headend** (287817) features six slots that can accommodate **various types of modules**, including multi-input HDMI encoders, DVB-S/S2/S2X, DVB-T2/T, or DVB-C receivers, as well as DVB-T or DVB-C multi-modulator cards.

 Unused slots are closed off using the GX-Front Panel module (287643).

Satellite Receiver Free To Air
GX-4S2FTA-BP-01 (287636)
- 4x independent SAT inputs (DVB-S/S2/S2X FTA)
- Independent LNB power supply for each RF input

Satellite Receiver Module with 2 Common Interface Slots
GX-4S2CI-BP-01 (287637)
- 4x DVB-S/S2/S2X tuners (2 SAT tuners paired with each F connector)
- 2x PCMCIA Common Interface slots assignable to any tuner in the module
- Independent power supply for each SAT input connector (LNB1, LNB2)

Terrestrial Digital Receiver
GX-4T2CI-BP-00 (287641)
- 1x RF coaxial input (F connector)
- Can tune up to 4x DVB-T/T2 digital terrestrial multiplexes
- 2x PCMCIA Common Interface slots assignable to any tuner in the module

Multi Digital Terrestrial Modulator
GX-BP-8T-R01A (287638)
- 1x RF output coaxial connector (F connector)
- Outputs up to 8x DVB-T digital multiplexes

Multi Digital Modulator
GX-BP-16T-16C (287818)
- 1x RF output coaxial connector (F connector)
- Up to 16x DVB-T or DVB-C digital multiplex output

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GALAXIA ADVANTAGES

- Up to six available slots in a standard 19" (1RU) chassis
- Four RJ45 GE ports on the front panel (two RJ45 ports for management and two RJ45 ports for IP streaming in/out)
- Two SFP ports for transceiver installation and fiber optic connections up to 20km
- Supports **up to 120 IPTV input streams and 120 IPTV output streams** (SPTS/MPTS)
- Hot-swappable modules (can be inserted without powering down the system)
- Redundant power supply

Multi-input HDMI Encoder
GX-4HDMI-BP-R01 (287639)

- 4x HDMI female inputs (HDMI 1.4)
- Encoding of sources in H.264 HD/SD

Additional 2x IPTV module
GX-2IP-02 (287812)

- 2x RJ45 10/100/1000 ports
- Data 1: 128 streams in/out, Data 2: 120 streams in/out
- Max bit rate 700Mbps (total)

Common Interface PCMCIA Module
GX-2CI-BP-00 (287640)

- 2x PCMCIA Common Interface slots that can be assigned to receivers

Receiver with 2 Common Interface Slots
GX-4C2CI-BP-00 (287644)

- 1x RF coaxial input connector (F-female)
- Tunes up to 4 DVB-C multiplexes (Annex A/C)
- 2x PCMCIA Common Interface slots assignable to any tuner of the module

3DGFLEX
MODULAR AND EXPANDABLE SOLUTION

The **3DGFlex solution** can manage a large number of satellite or digital terrestrial programs, as well as external analog or HDMI sources.
It is ideal for **medium to large-scale installations**.

Easily expandable thanks to its **modular design**, the headend can accommodate up to six modules, allowing for a wide range of mixed configurations.

3DG-BOX (283156)
The 3DG-BOX chassis features natural ventilation and is suitable for installation in a 4U rack or on the floor. A front plexiglass panel is included in the package.

Satellite Transmodulators
3DG-4S2-4T (283162) & 3DG-4S2-BP (283163)

- 4x DVB-S2 inputs and 4x DVB-T/C outputs with remapping and remuxing
- The 3DG-4S2-BP quad receiver increases the headend's satellite reception capacity by four transponders
- Sharing of tuned channels via the high-speed bidirectional back panel Smart & Pool
- Management of free-to-air or encrypted channels (2x FlexCAM)
- Playback of external audio/video files stored on a USB flash drive (.TS file format)
- Firmware compatible with the **DiSEqC SCD2 (dCSS)** protocol in DVB-S/S2 modules

Terrestrial Transmodulators
3DG-4T2-4T (283165) & 3DG-4T2-BP (283166)

- 4x DVB-T2/C inputs and 4x DVB-T/C outputs with content remapping and remuxing or as a simple signal regenerator
- The 3DG-4T2-BP quad receiver increases the terrestrial reception capacity of the headend by four multiplexes
- Sharing of tuned channels through the high-speed bidirectional back panel ("Smart & Pool")
- Management of free-to-air or encrypted channels (2xFlexCAM)
- Playback of external audio/video files stored on a USB flash drive (.TS file format)

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3DGFLEX ADVANTAGES

Remote Management
The native web interface allows programming, monitoring and saving configurations both locally and remotely.

Smart and Pool Functionality
All modules share the list of tuned channels, professional CAMs and Smart Cards via the high-speed bidirectional back panel.

External Video Playback
Each satellite or Digital Terrestrial module features an integrated player, enabling the playback of external video files stored on a USB drive (.TS file format).

Auto Remapping Functionality
Content distribution can be updated in real time without requiring TV retuning.

Priority for Main Programmes
With ARP 2.0 functionality, priority programmes are always distributed without service interruptions.

Flexible CAM (FLEXCAM)
Professional CAMs and Smart Cards can be used efficiently by associating them with all encrypted content from different inputs.

Power Redundancy
With the Backup Power Supply (3DG-PS-BU), the system ensures uninterrupted service at all times.

IPTV Streamer
3DG-BP-IP OUT (283164)
- Reception of programmes through the high-speed bidirectional back panel ("Smart & Pool")
- Up to 128 multicast IPTV programmes (UDP, RTP/UDP) managed by a single module
- Up to 1Gbit/s of effective bitrate for distributing UHD, HD, SD and Digital Radio content over an IP network with SAP and M3U service discovery functions
- Supports Single-Program and Multi-Program Transport Stream
- DRM (Digital Rights Management) integration ready

Auxiliary Power Supply Module
3DG-PS-BU (283168)
- Intelligently distributes power supply across the modules within the same chassis under normal operation, assisting the main power supply
- Takes over in case of a main power supply failure

Quad Transmodulator with ASI Inputs
3DG-4ASI-4T (283167)
- Transmodulation from ASI to 4x DVB-T/C outputs with remapping and remuxing
- Sharing of channels through the high-speed bidirectional back panel ("Smart & Pool")
- Playback of external audio/video files stored on a USB flash drive (.TS file format)
- Compatible with external analogue or HDMI sources via an encoder (see page 10)

D-MATRIX Compact Solutions

D-MATRIX compact headends can receive HD or SD satellite content from multiple independent inputs and remodulate it into IP streams or customized digital terrestrial cable multiplexes.

Thanks to the universal Common Interface slots, D-MATRIX headends can decrypt selected programs using the appropriate CAMs and professional Smart Cards.

D-MATRIX ADVANTAGES

- **Web Interface**: intuitive configuration and easy monitoring of the headends, both locally and remotely.
- **Multifunction USB Port**: enables distribution of video clips stored on an external USB flash drive (.TS file format) as well as loading/saving configurations and updating firmware.
- **Auto Remapping**: allows real-time modification of the distributed channel list without requiring TV retuning.
- **"Ad Hoc" Mux**: create customized multiplexes by selecting desired programs from any input source.
  ARP 2.0: assigns a priority level to each program,

ensuring service continuity in case of bit-rate overflow in a multiplex and preventing freezing issues. Programs are automatically restored once the total bit rate returns to operational limits.

- **Full Parameter Management**: provides complete control over all multiplex and individual program settings (LCN, SID, PDSD, NIT), even remotely.

MODEL	CODE	INPUTS	OUTPUTS
D-MATRIX-4S-4C	283130	DVB-S2	DVB-T/DVB-C
D-MATRIX-8S-FTA	283138	DVB-S2	DVB-T
D-MATRIX-8S-8T	283137	DVB-S2	DVB-T
D-MATRIX-8S-IP	283138	DVB-S2	DVB-IP

D-MATRIX-4S-4C

Code 283130

The compact **D-Matrix-4S-4C** 2CI control unit allows users to receive HD or SD programs (free-to-air or encrypted) from four independent satellite transponders and output them to the four available digital multiplexes (COFDM or QAM) across the TV band.

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D-MATRIX-8S-FTA

Code 283138

Compact headend featuring **eight independent DVB-S/S2 FTA** (Free-To-Air) satellite tuners, equipped with SCD2 dCSS LNB control functions. The eight fully flexible onboard modulators generate **8x DVB-T multiplexes**, enabling the distribution of multiple TV channels.

- Outputs up to 25x HD channels or 60x SD channels

D-MATRIX-8S-8T

Code 283137

Compact headend with **eight independent DVB-S/S2 satellite tuners and two Common Interface slots** for signal decryption, featuring SCD2 dCSS LNB control functions. The eight fully flexible onboard modulators generate **8x DVB-T multiplexes**, enabling distribution of multiple TV programs.

- Outputs up to 25x HD channels or 60x SD channels

D-MATRIX-8S-IP

Code 283139

Compact headend with **eight independent DVB-S/S2 satellite tuners and two Common Interface slots** for signal decryption, featuring SCD2 dCSS LNB control functions. Supports **output of up to 128x multicast IPTV streams** for distributing multiple TV programs over a LAN network.

- Outputs up to 128x Multicast IPTV streams channels

PROFESSIONAL ENCODERS

The **SIG series professional encoders** allow management of various external analog or HDMI sources, seamlessly integrating them into satellite or digital terrestrial program distribution.

- SIG7404H: supports up to 4 analogue sources with MPEG-2 encoding
- SIG7804H264RFIP: supports up to 4 HDMI sources with MPEG-4/H.264 encoding
- Configuration: front-panel keyboard and integrated web interface for easy setup
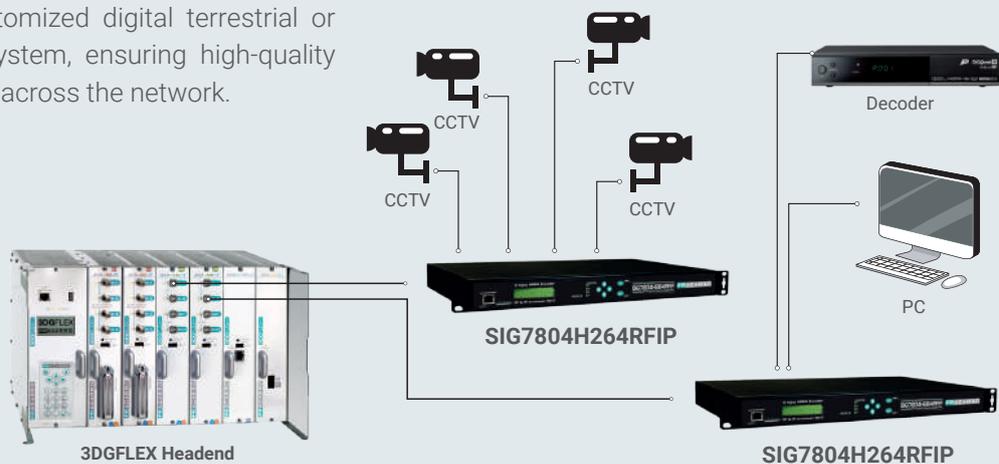- Design: standard 1RU 19" rack-mountable chassis

SIG7804H264RFIP

MODEL	CODE	DESCRIPTION
SIG7404H	287348	Professional encoder for up to 4 analog A/V sources with MPEG-2 encoding. ASI output.
SIG7804H264RFIP	287613	Professional encoder for up to 4x HDMI sources with H.264 encoding. Supports simultaneous RF (DVB-T) and multicast IPTV output.

APPLICATION EXAMPLE

A typical example of remodulating external HDMI sources using the 3DGFlex headend.
This setup enables seamless integration of HDMI content into a customized digital terrestrial or IPTV distribution system, ensuring high-quality signal transmission across the network.

CCTV
CCTV
CCTV
CCTV
Decoder
PC
SIG7804H264RFIP
3DGFLEX Headend
SIG7804H264RFIP

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FRACARRO PROFESSIONAL SERVICES

Choosing a **Fracarro solution** gives you access to cutting-edge technologies and a **range of products** suitable for any type of installation. Fracarro also offers a variety of essential services to support installers.

DESIGN SUPPORT

Our technical specialists are ready to guide you in identifying the most suitable solution to meet your guests' needs. Using your facility's floor plans, we design custom system layouts for optimal functionality, comfort, and efficiency. We also provide comprehensive, detailed Bills of Materials (BOM) that give a clear overview of the proposed solution, assisting you throughout the decision-making and implementation process.

ON LINE SUPPORT

Our dedicated support team is available Monday through Friday, 9:00 a.m. to 5:00 p.m. (Time Zone). We are here to assist with all technical inquiries about our products and solutions, provide clear, personalized guidance, and offer general information needed to identify the optimal solution for your specific requirements.
Contact: supportotecnico@fracarro.com

REMOTE COMMISSIONING AND TESTING

Our skilled technical team offers remote support to streamline the installation, programming, and management of your head ends. We ensure every step is effortless, providing fast, accurate configuration, expert consulting, and guided setup. To further elevate your operations, we also deliver enhanced monitoring solutions designed for optimal performance and maximum reliability.

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