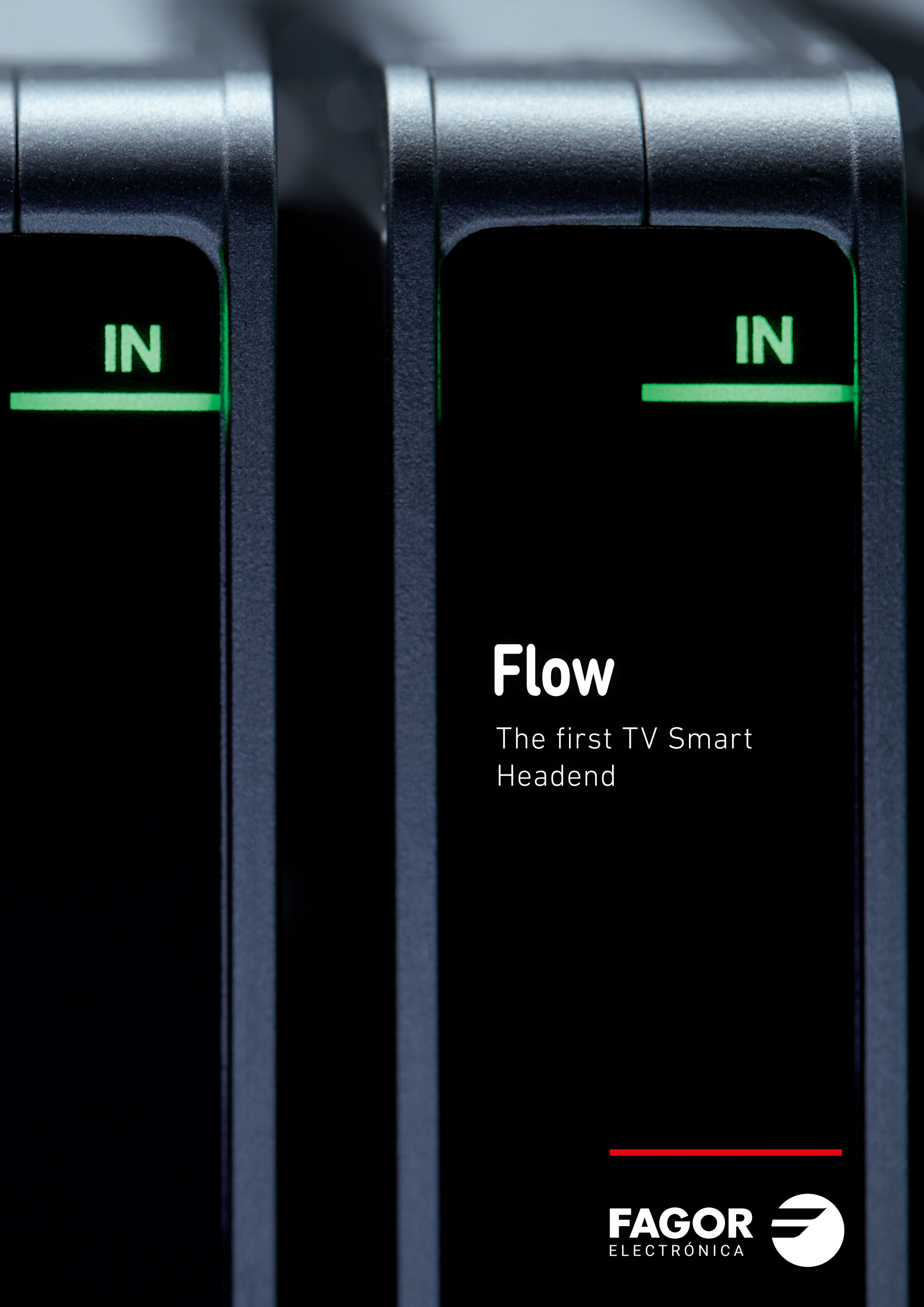


Flow

The first TV Smart Headend

FAGOR ELECTRÓNICA

FLOW-IN4

Quad universal input module (IN4)

The FLOW IN4 module's function is to tune four independent signals, each of which can be in DVB-T/T2 terrestrial, DVB-C cable, or DVB-S/S2 satellite format.

These signals are then processed and sent in SPTS (Single Program Transport Stream) form to an external network or other modules in the same headend via the backpanel of the FLOW chassis.

MODEL		FLOW-IN4
Reference		**4319**
INPUTS		
Number of inputs connectors		2
Number of tuners		4
Terrestrial mode		
Frequency band	MHz	47 - 862
Supported standards		DVB-T/T2
Cable mode		
Frequency band	MHz	47 - 862
Supported standards		DVB-C
Satellite mode		
Frequency band	MHz	950 - 2150
Supported standards		DVB-S/S2
IPTV OUTPUT		
Total SPTS		60
Transmission protocols		UDP
SAP protocol		Yes
Interface type		Gigabit Ethernet
Standar		1000Base-T

GENERAL		
Power supply voltage	VDC	24
Power consumption	W	8
Operating temperature	ºC	0 ... +45
Weight	g	460
Dimensions (Height x Width x Depth)	mm	125 x 27 x 210

FLOW-SEC

Security module (SEC)

The FLOW SEC decrypts multiple services received from the backpanel of the FLOW chassis.

For decrypting services, the FLOW SEC has two Common Interface slots where CAMs may be inserted. The total number of decrypted services depends on the CAM in use, the number of services, and the quantity of data flowing through the module.

The FLOW SEC module can encrypt the services on the output headend.

MODEL	FLOW-SEC
Reference	**4311**
IPTV INPUTS / OUTPUTS	
Interface	Gigabit Ethernet
Standard	1000Base-T
VLAN support	Sí
Transmission protocols	UDP
COMMON INTERFACE	
Number of slots	2
Standard	EN50221
CAM Warm Reset	Yes
CAM Cold Reset	Yes
DECRYPTION	
Channels of decryption capacity / CAM	2
Output SPTS per CAM	16
Total output SPTS	32
CAM reset on decryption failure	Yes

ENCRYPTION	
Supported DRMs	LG Pro:Idiom Samsung LINK Philips VSecure
Simulcrypt interface	Yes
Channel of encryption capacity	2
SPTS per channel of encryption	Simulcrypt : 8 LG Pro:Idiom : 12 Samsung LINK : 16 Philips VSecure : 16

GENERAL		
Power supply	VDC	24
Consumption (without CAM)	W	5,9
Operating temperature	ºC	0 ... 45
Weight	g	395
Dimensions (Height x Width x Depth)	mm	125 x 27 x 210

FLOW-ENC+

Quad HDMI encoder module (ENC+)

The FLOW ENC+ module aims at the compression, according to the H.264 and H.265 standards (coming soon), of digital video and/or audio signals received by each HDMI interface, and the subsequent delivery of the encapsulated video and/or audio in the form of IPTV channels.

MODEL			FLOW-ENC+
Reference			**4321**
INPUT			
Number of video-audio digital inputs			4
Input video format			HDMI
Video standard			V1.4
Digital audio			Yes (HDMI)
COMPRESSION			
Vídeo compression			H.264/MPEG4 AVC MP L4.1 H.265 (Coming soon)
Audio compression			MPEG1 layer II, MPEG2_LE_ACC, MPEG4_HE_AAC
Video quality			SD y HD (480i, 576i, 480p, 576p, 720p50, 720p60, 1080i50, 1080i60, 1080p50, 1080p60
Image format			4:3 / 16:9
H.264 Profile			MPEG4 AVC MP, HP
H.264 Level			3.0, 3.1, 3.2, 4.0, 4.1, 4.2
Video Bitrate	H.264	kbps	2000-19000
Audio codec			MPEG1 Layer II MPEG2 AAC LE MPEG2 AAC HE MPEG4 AAC LE MPEG4 AAC HE
Audio Bitrate		kbps	96, 128, 160, 192, 224, 256, 320, 384
Coding format			VBR in H.264

IPTV OUTPUT		
SPTS (Single Program Transport Stream)		4
Transmission protocols		UDP
Transmission protocols		Yes
Interface		Gigabit Ethernet
Standard		1000Base-T
GENERAL		
Power supply voltage	VDC	24
Consumption	W	12 with four 1080i60 inputs in H.264
Operating temperature	°C	0 ... +45
Weight	g	525
Dimensions (Height x Width x Depth)	mm	125 x 27 x 210

FLOW-OUT

Universal output module (OUT)

The FLOW OUT module generates 4 or 6 RF carriers (depending on the selected mode) in DVB-T, DVB-C or J.83 Annex B format.

When OUT4 mode is selected, 4 RF carriers wil be generated. Each carrier can convey up to 8 television or radio services (SPTS).

When OUT 6 mode is selected, 6 RF carriers will be generated, each one with 6 television or radio services (SPTS) as maximun.

Each Flow headend may have several OUT modules, whose RF carriers are all combined and amplified by the FLOW BASE.

MODEL		FLOW-OUT
Reference		**4313**
IPTV INPUT		
Interface type		Gigabit Ethernet
Standard		1000Base-T
VLAN support		Sí
RF OUTPUT		
Number of outputs RF carriers		4 in OUT4 mode 6 in OUT6 mode
Number of SPTS per RF carriers		8 in OUT4 mode 6 in OUT6 mode
Total SPTS		32 in OUT4 mode 36 in OUT6 mode
Standards supported		DVB-T EN 300 744 DVB-C EN 300 429 J.83 Anexo B
MER	dB	> 42
GENERAL		
Power supply voltage	VDC	24
Power consumption	W	21,5
Operating temperature	°C	0 ... +45
Weight	g	425
Dimensions (Height x Width x Depth)	mm	125 x 27 x 210

FLOW-HUB

Control module (HUB)

The FLOW HUB is the central connecting element of the FLOW headend, with a dual routing and control function. It routes the ethernet traffic in the headend, both internally between modules, and between the modules and the outside world. It also performs centralized management and configuration of the entire FLOW headend and exposes the web interface for configuration and control through dedicated Wi-Fi and wired ethernet connections.

It is also able to detect existing RF channels in a network to avoid using them in the headend out.

MODEL		FLOW-HUB
Reference		**4314**
Wi-Fi INTERFACE		
Interface type		Wireless LAN
Standard		Wi-Fi
Radio band	GHz	2,4
Reception/Transmission mode		SISO
TX power	dBm	-18
RX power	dBm	-96
Connection		SDIO controller
Layer 3 addresses assignment		SoftAP / DHCP
Security		WPA 2.0
EXTERNAL ETHERNET INTERFACE (CONTROL)		
Number of interfaces		1
Interface type		Gigabit Ethernet
Standard		1000BASE-T
VLAN support		IEEE VLAN
EXTERNAL ETHERNET OUTPUT (TV)		
Number of interfaces		2
Interface type		Gigabit Ethernet
Standard		1000BASE-T
VLAN support		IEEE VLAN
BACKPANEL ETHERNET INTERFACE		
Number of interfaces		10
Interface type		Gigabit Ethernet
Standard		1000BASE-T
VLAN support		IEEE VLAN

RF CHANNELS DETECTION		
Terrestrial input		
Supported standards		DVB-T/T2
Frequency band	MHz	47 - 862
Input level in BASE	dBµV	> 45
Cable input		
Supported standards		DVB-C
Frequency band	MHz	47 - 862
Input level in BASE	dBµV	> 50
GENERAL		
Power supply voltage	VDC	24
Power consumption	W	11
Remote mode		IP (Wi-Fi or BASE-T)
Operating temperature	ºC	0 ... +45
RF input connectors (backpanel)		F (x1)
External ethernet frontal connector (control)		RJ-45 single
External ethernet frontal connector (TV)		RJ-45 dual
USB frontal connector (control)		Type-A socket
Weight	g	454
Dimensions (Height x Width x Depth)	mm	125 x 27 x 210

FLOW-BASE

Backpanel (BASE)

The FLOW BASE incorporates a hybrid ethernet/RF backpanel unique to FLOW, and manages the RF connectivity and energy use of all elements in the headend. The intelligent chassis controls all RF signals, power supply, and module hot-swap functions.

- An integrated multiswitch automatically routes satellite signals to the modules that require them.
- Universal F type connectors allow easy attachment to premises cabling.

A lightweight and robust design offers easy installation in a rack environment without the use of tools, and is also suitable for wall mount installations. Its modular structure allows it to be configured to meet almost any customer requirement.

MODEL		FLOW-BASE
Reference		**4312**
TERRESTRIAL / CABLE MODE		
Number of inputs		2
Frequency range	MHz	47 - 862
Input level	dBµV	40 - 90 *
Impedance	Ω	75
SATELLITE MODE		
Number of inputs		8
Frequency range	MHz	950 - 2150
Input level	dBµV	40 - 98
Impedance	Ω	75
OUTPUT		
Number of outputs		1
Output frequency range	MHz	47-862
Output level adjustment	dBµV	78 - 108
Output level stability	dB	±1
Spurious signal in band	dBc	< -60
Broadband noise (Δ5 MHz)	dBc	< -65
Impedance	Ω	75
Output test	dB	-30

GENERAL		
Power supply voltage	VDC	24
Power consumption	W	10
Preamplifier powering		
Inputs		TV1 & TV2
Adjustable voltage	VDC	12/24
Max consumption per input	mA	100
Universal / Quattro LNB powering		
Inputs		SAT1 & SAT2
Voltage	VDC	13V - 18V (selectable)
Tones insertion	kHz	0 - 22 (selectable)
Max consumption per input	mA	300
Quattro LNB powering		
Inputs		SAT3 to SAT8
Voltage	VDC	12
Total max consumption	mA	600
Operating temperature	°C	0 ... +45
Mounting type		Wall-fixing / 19" Rack
Input/Output RF connectors		F (12)
Weight	kg	3,800
Dimensions (Height x Width x Depth)	mm	175 x 487 x 319

* In order to avoid issues on the satellite reception, the terrestrial signal level can't exceed 80 dBµV. Use an external attenuator if necessary.

FLOW-PSU

Power supply module (PSU)

The FLOW PSU delivers power to the headend efficiently and reliably. It has the capacity to power the most demanding headend configuration..

MODEL		FLOW-PSU
Reference		**4308**
Type		Switched-mode
Input voltage (50-60 Hz)	VAC	100 - 240
Output voltage	V	24
Maximum power	W	180
Efficiency	%	90
Operating temperature	ºC	0 ... +45
Weight	g	900
Dimensions (Height x Width x Depth)	mm	125 x 38 x 210

FLOW-PSU REDUNDANT

Redundant power supply module (FLOW RPSU REDUNDANT)

The FLOW RPSU REDUNDANT provides the power required for the most exigent headend, ensuring uninterrupted power in the event of failure of one of the two available power supplies. The damaged power supply can be changed without disconnecting the headend from the power.

The FLOW RPSU REDUNDANT integrates two identical power suplies in a 1RU (rack unit) chassis.

MODEL		FLOW-RPSU REDUNDANT
Reference		**4320**
Type		Switched-mode
Input voltage (50-60 Hz)	VAC	100 - 240
Output voltage	V	24
Maximum power	W	180
Efficiency	%	90
Power factor		0,96
Number of redundant power supplies		2
Operating temperature	ºC	0 ... +45
Weight	kg	3,3
Dimensions (Height x Width x Depth)	mm	485 x 242 x 56

FLOW-COVER

Cover to the chassis (COVER)

The FLOW COVER includes 5 variable-speed fans to automatically maintain the modules installed in the headend within their designed temperature ranges.

A unique magnetic connection system allows the FLOW COVER to be attached or removed as needed, easily and without tools.

MODEL		FLOW-COVER
Reference		**4316**
Power supply voltage	VDC	24
Power consumption	W	11
Operating temperature	°C	0 ... +45
Number of fans		5
Weight	kg	2,200
Dimensions (Height x Width x Depth)	mm	175 x 487 x 30

FLOW-STB-4K IP HDMI

Set-Top Box (STB)

FLOW-STB-4K IP HDMI is a cost-effective UHD IPTV/OTT set-top box intended for medium to large sized operators and telecommunication service providers. It has 1 GB RAM and 4 GB flash memory, which is good enough for playback and storage of the latest high-quality video formats, like HEVC video.

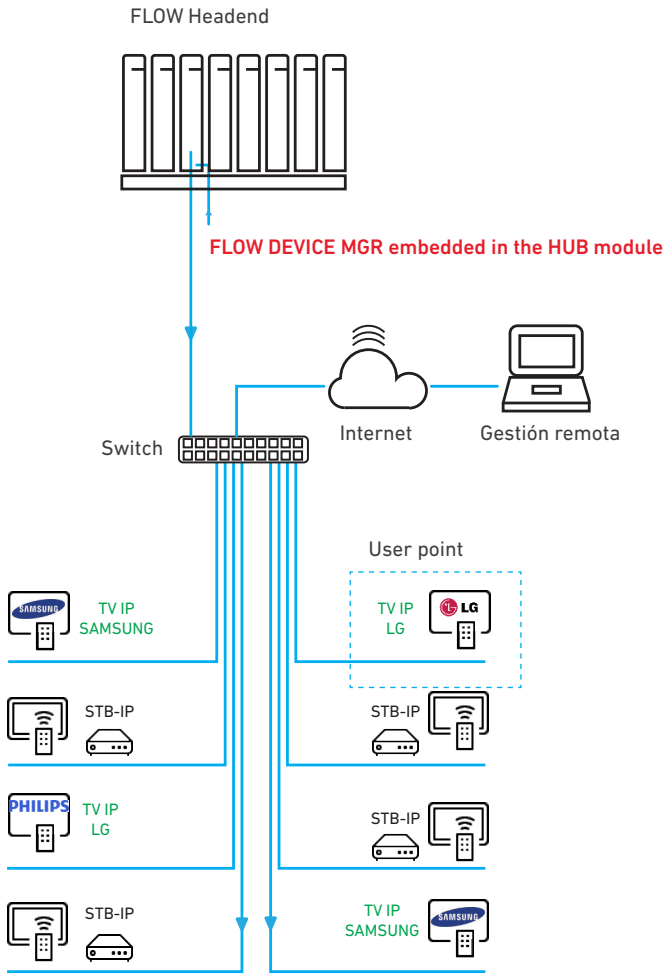
MODEL		FLOW-STB-4K IP HDMI
Reference		**4328**
HARDWARE		
Chipset		Amlogic S905X2 18400 DMIPS
Processor		ARM Cortex-A53 Quad Core CPU 1900 MHz
RAM	GB	1
Flash memory	GB	4
SOFTWARE		
Operating system		Linux 4.9
MW/UI		Built-in Media Portal with WebKit-based IPTV-functionality HTTP 1.1, HTML 4.01 XHTML 1.0/1.1; DOM 1, 2, 3, CSS 1, 2, 3; XML 1.0, XSLT 1.0, XPath 1.0 ; SOAP 1.1; JavaScript ECMA-262, revision 5; Media JavaScript API; C layer SDK
INTERFACES		
Digital AV		HDMI 2.1
Ethernet	Mbps	100
USB		USB 2.0 x1 ; USB 3.0 x1
SUPPORTED AUDIO-VIDEO FORMATS		
Audio codecs		MPEG L1/L2/L3, AAC-LC, HE AAC V1/V2, APE, FLAC, Dolby Digital Plus™
Audio formats		AC3, AAC, APE, FLAC, M4A, MP3, OGG, WAV
Video modes		PAL, NTSC, 576p, 720p, 1080p, 1080i, 2160p
Video codecs		H.265 (HEVC), H.264 (AVC), MPEG-1/2, MPEG-4, XviD, 3D video support
Video containers		MTS, AVI, MPEG, MP4, MOV, MKV, M2TS, VOB
Image formats		JPEG, PNG, BMP, RAW
Subtitles		DVB, PGS, SRT, SSA/ASS, SUB, Teletext subs, WebVtt, Closed Caption
Playlist formats		M3U, M3U8, PLS, CUE
GENERAL		
Power Supply	DC	5V, 2A
Operating temperature	ºC	1 ... 40
Dimensions (width x depth x height)	mm	120 x 78 x 21
Weight	g	110
Package contents		FLOW-STB-4K IP HDMI, user manual, HDMI cable, Power adapter, remote control, 2 AAA batteries, packaging

FLOW-DEVICE-MGR

Management software (MGR)

The new functionality integrated into Flow allows the STB-IP to be controlled in a centralized way.

MODELO	FLOW-DEVICE-MGR
Referencia	**4317**



Main features

- Integrated into the control module (HUB) of FLOW.
- It is activated through a license that never expires and does not need renewal.
- FLOW DEVICE MGR generates a list of multicast channels for the STB-IP from FLOW.
- This list is generated automatically in case of any change in the headend.
- When STB-IP is connected, the headend assigns automatically an IP address (DHCP protocol).
- In the same IP assignment response, the URL to which it should connect is indicated in order to download the updated channel list.
- The default channel that should be shown on the STB at startup, can be centrally fixed.

Suppported devices

- FLOW STB
- FLOW STB AC3+
- TV LG with API HCAP HTML5
- TV Samsung with API H.BROWSER*
- TV Philips with API JAPIT

* Remote switch off or switch on of Samsung TVs is not supported

Multistándar

Flow adapts to your present and to your future

High density
Small footprint per channel

Capable of processing more than 200 SD services or 120 HD services

Content driven
Manages content and not technical parameters

User friendly interface which minimizes configuration time

No need for additional licenses

One platform for all your TV needs

Designed to convert any TV input into any TV output standard

Double secure

Premium content always protected by including DRM protection

FAGOR ELECTRÓNICA | IKUSI

Fagor Multimedia Solutions SL.
Araba hiribidea, 34
E-20500 Mondragón - Guipúzcoa
Tel: +34 943 71 25 26
e-mail: rf.sales@fagorelectronica.es
www.fagorelectronica.com

Donostia Ibilbidea, 28
E-20115 Astigarraga - Guipúzcoa
Tel:+34 943 44 89 44
e-mail: support@fagormultimedia.com
www.fagormultimedia.com