



IKUSI

IN

IN

ikusiflow

The first TV Smart
Headend

Product	Page
FLOW-IN2	3
FLOW-IN4	4
FLOW-SEC	5
FLOW-ENC	6
FLOW-OUT	7
FLOW-HUB	8
FLOW-BASE	9
FLOW-PSU	10
FLOW-RPSU REDUNDANT	11
FLOW-COVER	12
FLOW-STB-4K IP HDMI	13
FLOW-DEVICE-MGR	14

FLOW-IN2



Dual universal input module (IN2)

The FLOW IN2 module's function is to tune two 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 Ikusi FLOW chassis.

Model	FLOW-IN2	
Ref.	4318	
Inputs		
Number of inputs connectors	2	
Number of tuners	2	
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	62	
Transmission protocols	UDP	
SAP protocol	Yes	
Interface type	Gigabit Ethernet	
Standard	1000Base-T	

General		
Power supply voltage	Vdc	24
Power consumption	W	6.5
Operating temperature	°C	0 ... +45
Weight	g	328
Dimensions (Height x Width x Depth)	mm	125 x 27 x 210

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 Ikusi FLOW chassis.

Model	FLOW-IN4		
Ref.	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		
Standard	1000Base-T		

General		
Power supply voltage	Vdc	24
Power consumption	W	8
Operating temperature	°C	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 Ikusi 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
Ref.	4311
IPTV Inputs/outputs	
Interface	Gigabit Ethernet
Standard	1000Base-T
VLAN support	Yes
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	°C	0 ... 45
Weight	g	328
Dimensions (Height x Width x Depth)	mm	125 x 27 x 210

FLOW-ENC



Quad HDMI encoder module (ENC)

The FLOW ENC can be configured to encode video content in a variety of resolutions and formats through the easy-to use Ikusi FLOW web interface. The encoded streams are then sent by ethernet over the Ikusi FLOW backpanel to external IPTV networks, or to other modules for further processing and inclusion in RF output multiplexes.

Model		FLOW-ENC	
Ref.		4315	
Input			
Number of video-audio digital inputs		4	
Input video format		HDMI	
Video standard		V1.4	
Digital audio		Yes (HDMI)	
Compression			
Video compression		MPEG2 MP@ML, H.264/MPEG4 AVC MP L4.1	
Audio compression		MPEG1 layer II, MPEG2_LE_ACC, MPEG4_HE_AAC	
Video quality		SD and HD (480i, 576i, 480p, 576p, 720p50, 720p60, 1080i50, 1080i60, 1080p25, 1080p30)	
Image format		4:3 / 16:9	
Video codec		MPEG2, H.264	
H.264 Profile		MPEG4 AVC MP, HP	
H.264 Level		3.0, 3.1, 3.2, 4.0, 4.1, 4.2	
Video Bitrate	MPEG2 H.264	kbps	2000-15000 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		CBR in MPEG2 VBR in H.264	

IPTV output		
SPTS (Single Program Transport Stream)		4
Transmission protocols		UDP
SAP protocol		Yes
Interface		Gigabit Ethernet
Standard		1000Base-T
General		
Power supply voltage	V _{dc}	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 will 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 maximum.

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

Model		FLOW-OUT
Ref.		4313
Input IPTV		
Interface type		Gigabit Ethernet
Standard		1000Base-T
VLAN support		Yes
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 Annex B
MER	dB	> 42
General		
Power supply voltage	V _{dc}	24
Power consumption	W	21,5
Operating temperature	°C	0 ... +45
Weight	g	400
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 Iкуси 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 Iкуси 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	
Ref.		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	°C	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 Ikusi 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
Ref.		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

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

Preamplifier powering		
Inputs		TV1 and TV2
Adjustable voltage	Vdc	12/24
Max consumption per input	mA	100
Universal / Quattro LNB powering		
Inputs		SAT1 and 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	5
Dimensions (Height x Width x Depth)	mm	175 x 487.5 x 319

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
Ref.		4308
Type		Switched-mode
Mains power supply voltage (50-60 Hz)	VAC	100 - 240
Output voltage	V	24
Maximum power	W	180
Efficiency	%	90
Operating temperature	°C	0 ... +45
Weight	g	840
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 supplies in a 1RU (rack unit) chassis.



Model		FLOW-RPSU REDUNDANT
Ref.		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	°C	0 ... +45
Weight	kg	3.3
Dimensions	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
Ref.		4316
Power supply voltage	Vdc	24
Power consumption	W	11
Operating temperature	°C	0 ... +45
Number of fans		5
Weight	g	1000
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	
Ref.	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	°C	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 Ikusi Flow allows the STB-IP to be controlled in a centralized way.

Model	FLOW-DEVICE-MGR
Ref.	4317

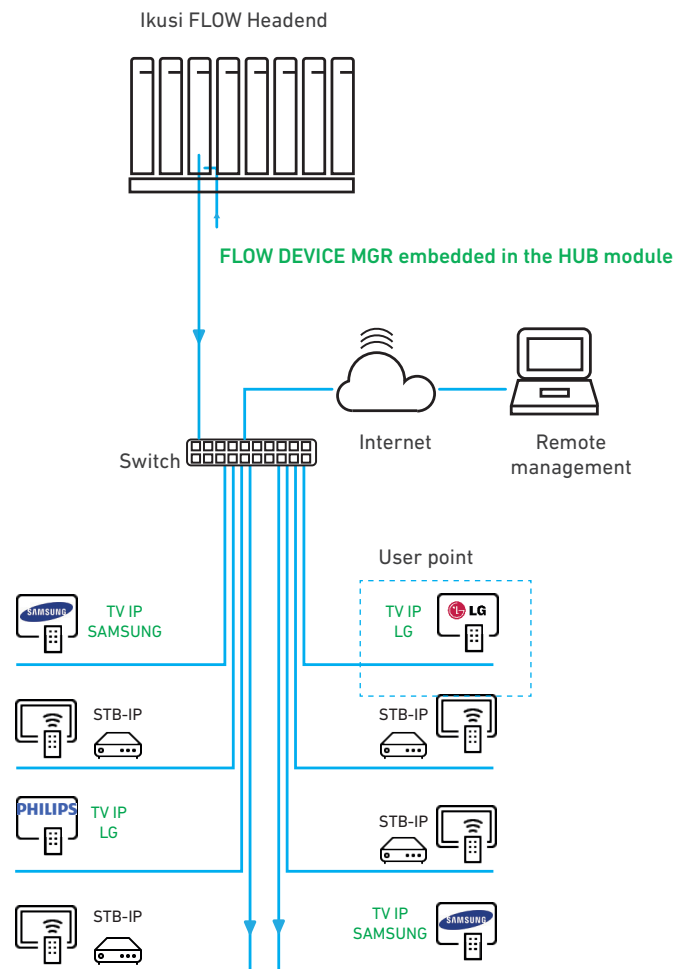
Main features

- Integrated into the control module (HUB) of Ikusi 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 Ikusi 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.

Supported devices

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

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





High density
Small footprint per channel
Capable of processing more than
200 SD services or 120 HD services



Multistandard
Ikusi Flow adapts to your present
and to your future



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

Ikusi Multimedia



Ikusi Multimedia
Donostia Ibilbidea, 28
20115 Astigarraga
Gipuzkoa, España
Tel.: +34 943 44 88 95
television@ikusi.com
www.ikusi.tv