IKUSI
velatia

*smart*experience

IN

IN

# ikusiflow

The first TV Smart
Headend

SWISH
HOSPITALITY

# FLOW IN

Dual universal input module (IN)

The FLOW IN 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 IN |
|---|---|---|
| **Ref.** | | 4306 |
| **Inputs** | | |
| Number of inputs | | 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** | | |
| SPTS (Single Program Transport Stream) per input | | 32 |
| Total SPTS | | 64 |
| Transmission protocols | | UDP / RTP |
| TS packets per UDP frame | | 1 - 7 |
| SAP protocol | | Yes |
| Interface type | | Gigabit Ethernet |
| Standard | | 1000Base-T |
| VLAN support | | Yes |

| General | | |
|---|---|---|
| Power supply voltage | $V_{DC}$ | 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 | | 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** | | |
| SPTS (Single Program Transport Stream) per input | | 16 |
| Total SPTS | | 64 |
| Transmission protocols | | UDP / RTP |
| TS packets per UDP frame | | 1 - 7 |
| SAP protocol | | Yes |
| Interface type | | Gigabit Ethernet |
| Standard | | 1000Base-T |
| VLAN support | | Yes |

| General | | |
|---|---|---|
| Power supply voltage | $V_{DC}$ | 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 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 |
| **Common interface** | | |
| Number of slots | | 2 |
| Standard | | EN50221 |
| CAM Warm Reset | | Yes |
| CAM Cold Reset | | Yes |
| **Transport processing** | | |
| Channels of decryption capacity / CAM | | 2 |
| SPTS per CAM | | 16 |
| Total SPTS | | 32 |
| Transmission protocols | | UDP / RTP |
| TS packets per UDP frame | | 1 - 7 |
| CAM reset on decryption failure | | Yes |
| **General** | | |
| Power supply | $V_{DC}$ | 24 |
| Consumption (without CAM) | W | TBD |
| Operating temperature | ºC | 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** | | | |
| Vídeo 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 BP, MP, HP |
| H.264 Level | | | 1, 1.0, 1.1, 1.2, 1.3, 2.0, 2.1, 2.2, 3.0, 3.1, 3.2, 4.0, 4.1, 4.2 |
| Video Bitrate | MPEG2 H.264 | kbps | 4000-15000 4000-19000 |
| Audio codec | | | MPEG2 L1/2, LE-AAC, HE-AAC |
| Audio Bitrate | | kbps | 96, 128, 160, 192, 224, 256, 320, 384 |
| Coding format | | | VBR |

| IPTV output | | |
|---|---|---|
| SPTS (Single Program Transport Stream) | | 4 |
| Transmission protocols | | UDP / RTP |
| TS packets per UDP frame | | 1 - 7 |
| SAP protocol | | Yes |
| Interface | | Gigabit Ethernet |
| Standard | | 1000Base-T |
| VLAN support | | Yes |
| **General** | | |
| Power supply voltage | $V_{DC}$ | 24 |
| Consumption | W | TBD |
| Operating temperature | ºC | 0 ... +45 |
| Weight | g | TBD |
| Dimensions (Height x Width x Depth) | mm | 125 x 27 x 210 |

# FLOW OUT

Universal output module (OUT)

The FLOW OUT module generates 4 o 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 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<br>6 in OUT6 mode |
| Number of SPTS per RF carriers | | 8 in OUT4 mode<br>6 in OUT6 mode |
| Total SPTS | | 32 in OUT4 mode<br>36 in OUT6 mode |
| Standards supported | | DVB-T  EN 300 744<br>DVB-C EN 300 429<br>J.83 Anexo 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<br>(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 Ikusi 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 Ikusi 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 | $V_{DC}$ | 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 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 mode** | | |
| Number of inputs | | 2 |
| Frequency range | MHz | 47 - 862 |
| Input level | dBμV | 40 - 90 |
| Impedance | Ω | 75 |
| **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 | $V_{DC}$ | 24 |
| Power consumption | W | 10 |
| Preamplifier powering | | |
|    Inputs | | TV1 and TV2 |
|    Adjustable voltage | $V_{DC}$ | 12/24 |
|    Max consumption per input | mA | 100 |
| LNBs Quattro powering | | |
|    Inputs | | SAT1 to SAT8 |
|    Voltage (SAT3 to SAT8) | $V_{DC}$ | 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.

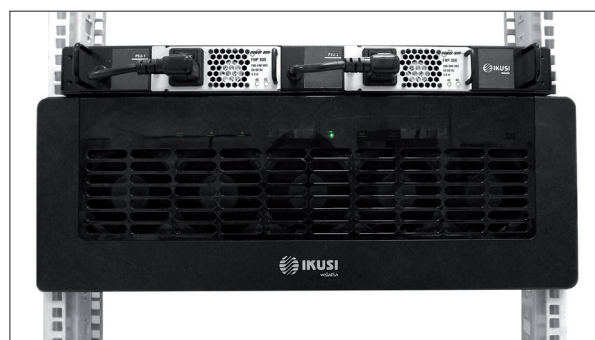| Model | | FLOW PSU |
|---|---|---|
| Ref. | | 4308 |
| Type | | Switched-mode |
| Mains power supply voltage (50-60 Hz) | V$_{AC}$ | 100 - 240 |
| Output voltage | V | 24 |
| Max total current | A | 7.5 |
| Efficiency | % | 90 |
| Operating temperature | °C | 0 ... +45 |
| Weight | g | 840 |
| Dimensions (Height x Width x Depth) | mm | 125 x 38 x 210 |

# FLOW PSU REDUNDANT



Redundant power supply module (FLOW PSU 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 |
|---|---|---|
| Ref. | | 4320 |
| Tipe | | Modo conmutado |
| Input voltage (50-60 Hz) | $V_{AC}$ | 85 - 264 |
| Output voltage | V | 24 |
| Maximum power | W | 2x 310 |
| Efficiency | % | 86 |
| Power factor | | 0.96 |
| Number of redundant power supplies | | 2 |
| Operating temperature | °C | 0 ... +55 |
| Weight | kg | 3.3 |
| Dimensions (Height x Width x Depth) | mm | 44.45 x 48.26 x 280 |

# 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 | $V_{DC}$ | 24 |
| Power consumption | W | 11 |
| Operating temperature | ºC | 0 ... +45 |
| Number of fans | | 5 |
| Weight | g | 1000 |
| Dimensions (Height x Width x Depth) | mm | 175 x 487 x 30 |

# FLOW STB

Set Top Box (STB)

FLOW STB is a powerful Set-Top Box with efficient processor STiH207 and increased RAM memory, and it is an optimal solution for IPTV/OTT projects. The Set-Top Box is designed to fulfill any business project.

The increased productivity of FLOW STB enables to use resource-intensive interactive applications and support 3D-video. STiH207 650Mhz, Linux 2.6.23, Composite AV, HDMI 1.4, USB x 2, S/PDIF, LAN, WiFi Ready.

| Model | | FLOW STB |
|---|---|---|
| **Ref.** | | **1050** |
| **Hardware** | | |
| Processor | | STiH207 |
| RAM | Mb | 512 |
| Flash memory | Mb | 256 |
| **Software** | | |
| Operating system | | Linux 2.6.23 <br> 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** | | |
| Audio output S/PDIF HDMI 1.4-output Composite + stereo A/V output Ethernet 100 Mb/s USB 2.0 (WiFi-adapter can be connected) | | |
| **Sources of media content** | | |
| PC and NAS in local network, Stream media protocols (RTSP, RTP, UDP, IGMP, HTTP), USB-devices | | |
| **Supported Audio-Video formats** | | |
| Audio compression | | MPEG-1 layer I/II, MPEG-2 layer II, MPEG-2 layer III (mp3), Dolby Digital (optional), DTS (optional) |
| Audio formats | | MP3, MPA, M4A, WMA (optional), Ogg, WAV |
| Video modes | | 1080i, 1080p, 720p, 576p, 480p, PAL, NTSC |
| Video compression | | MPEG1/2 MP@HL, H.264 HP@level 4.1, MPEG4 part 2 (ASP), WMV-9 (optional), VC1 video, XviD; HD video supporting (up to 40 Mbit/s and above) |
| Video containers | | MKV, MPEG-TS, MPEG-PS, M2TS, VOB, AVI, MOV, MP4, ASF, QT, WMV |
| Image formats | | JPEG, PNG, BMP, GIF, RAW |
| Subtitles | | DVB, SRT, text MKV |
| Playlist formats | | M3U |
| **General** | | |
| Operating temperature | ºC | 1 ... 40 |
| Dimensions (width x depth x height) | mm | 127 x 87 x 30 |
| Weight | g | 190 |
| Standard set | | FLOW STB Set-Top Box, user manual, mini jack cable to RCA (A/V), Power adapter 12V 1A, remote control, 2 AAA batteries, packaging |

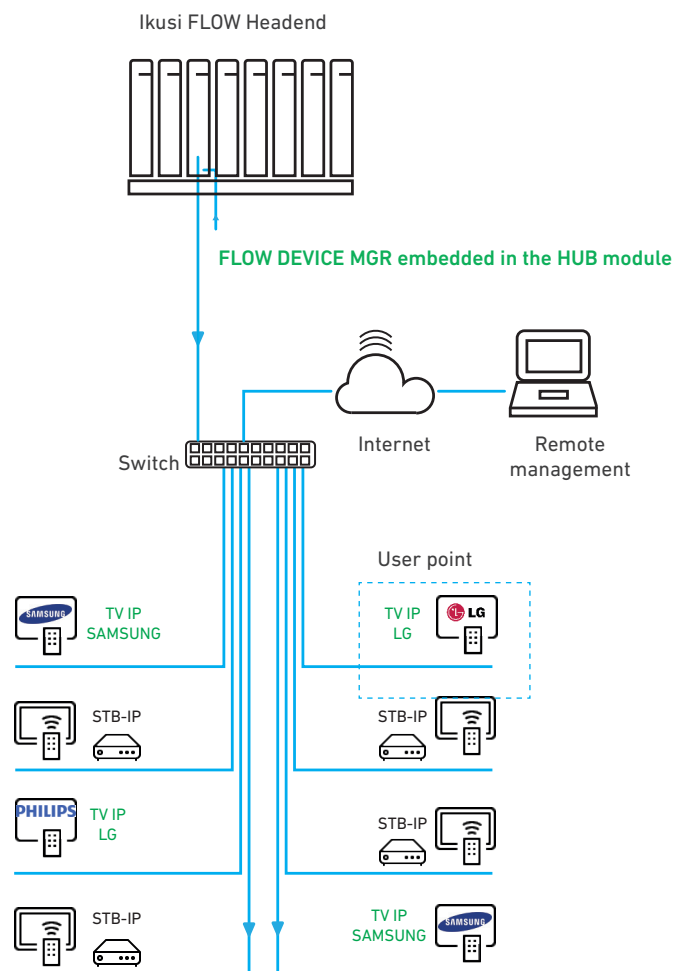# FLOW DEVICE MGR

**FUNCTIONALITY**

## DEVICE MANAGER *NEW!*

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.

Ikusi FLOW Headend

**FLOW DEVICE MGR embedded in the HUB module**

Switch    Internet    Remote management

User point

TV IP SAMSUNG    TV IP LG

STB-IP    STB-IP

TV IP LG (PHILIPS)    STB-IP

STB-IP    TV IP SAMSUNG

**Multistandard**

Ikusi 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

# International presence

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