GOING FUTURE TODAY.

Satellite to IP Streaming Platform

U 14x modules for U 100 base units

Modular SAT to IP Streaming

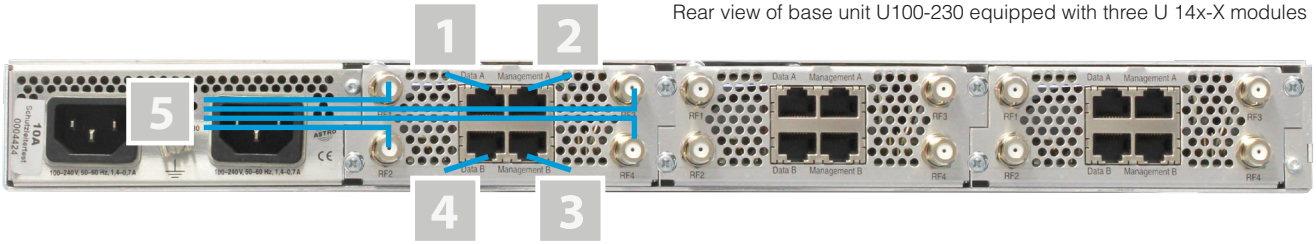
A complete concept –
suited for different key markets!

Based on the U 100 head end series, the U 14x-X streamer family enhanced the successful ASTRO platform with ultra-dense satellite to IP converters including a vast variety of integrated and licensed features. The unique architecture of the U 100 headend series enables highest density with maximum reliability for professional technical environments. Hard- and software based redundancy mechanisms are developed in close connection with our customers to meet the requirements for any operator!

- Broadcast
- Satellite Operators
- Cable Network Operators
- Telecommunication
- IPTV Operators

- up to 48 satellite carriers per 19“ RU
- 16 / 32 APSK tuners with DiSEqC and JESS support
- flexible frontend configuration with integrated input switch
- support of multistream carriers
- Free-to-Air or CI descrambling version
- CI version with multi-channel-descrambling for professional CAMs
- service filter for bandwidth saving
- streaming IP/UDP, IP/RTP and FEC
- U 149-X: High density mode → 48 carriers / RU, 50 Mbit/s per TS; High data rate mode → 12 carriers / RU, 200 Mbit/s per TS

Rear view of base unit U100-230 equipped with three U 14x-X modules



1 Data A Output
2 Management A
3 Management B
4 Data B Output
5 RF Inputs 1 - 4

Signal processing

- drop or pass service filtering to delete or to use services
- stuffing unit to reach a dedicated output data rate
- powerful multiplexer incl. EIT-recalculation as an option; U 144-X: 1 x 4 in 4, U 148-X: 2 x 4 in 4
- descrambling with CI (U 144-X) and BISS embedded (except U 149-X)

IP Streaming

- streaming protocols IP/UDP, IP/RTP
- configurable FEC (lines / columns) according SMPTE 2022 / CoP 3
- parallel streaming via two data interfaces
- MPTS streaming included, SPTS streaming under license
- editable TOS (type of service) and TTL (time-to-live)
- streaming into VLANS with configurable VLAN number per data port and IP TX

Modules

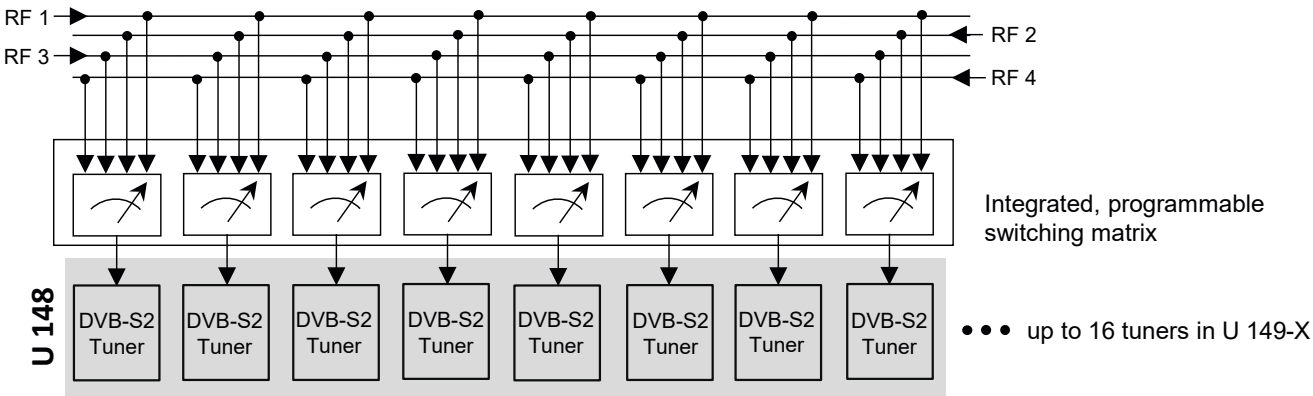
	U 144-X	U 148-X	U 149-X
Order number	380 159	380 269	380 278
Base unit	separate module, up to 3 in U 100-230 or U 100-48	separate module, up to 3 in U 100-230 or U 100-48	separate module, up to 3 in U 100-230 or U 100-48
Number of carriers per module / per RU	4 / 12	8 / 24	16 / 48
Number of DVB-S2 input signals per module / per RU	4	4	4
Number of IP output streams	8 MPTS	8 MPTS	16 MPTS
Number of additional output streams with SPTS license	504 SPTS	504 SPTS	504 SPTS
CI slots	☑	–	–
DVB-Sx ready	–	–	☑
software support without SLA	☑	☑	☑

Licenses *)

U Blind Scan: Blind scan function for streamers; order no. 380 135	☑	☑	–
U Carrier Monitoring: Monitoring function for streamers; order no. 380 132	☑	☑	–
U SPTS: Streaming of SPTS for Streamers; order no. 380 146	☑	☑	–
U 149-X SPTS: Streaming of SPTS; order no. 380 153	–	–	☑
U Streamer BISS: Embedded BISS descrambling, order no. 380 134	☑	☑	–
U Streamer MUX: Multiplex function for SAT streamers, order no. 380 147	☑	☑	–
U Wideband Mode: Wideband mode for U 149-X, order no. 380 156	☑	☑	☑
U RADIUS: Activation of RADIUS client server protocol, order no. 380 136	☑	☑	☑
U SSL: Activation of TLS protocol (SSL), order no. 380 133	☑	☑	☑
U TS Analyzer: Activation of transport stream anaysis, order no. 380 267	☑	☑	☑

* license key needed

Input signal assignment



- DiSEqC and Unicable II dCSS (EN50494 / 50607) support for maximum flexibility
- up to 64 polarizations in combination with Quad-dCSS switch and wideband LNBs (149-X)
- savings in cabling efforts – all tuners can be programmed to the same RF port
- tuners offer system parameters for monitoring, like C/N, Eb/N0, input power and more
- manual service selection or selection from satellite data base provided by ASTRO

Monitoring features

These features have been integrated mainly for satellite operators. First it is the Blind Scan function to use the U 148-X as scanner for downlink signals. After an initial scan to record the reference status of the signals, the U 148-X executes scan loops to find deviations of the reference values. Those deviations lead to error messages to be evaluated by a management system. Operators can be informed about changed transmission parameters, added or missing transponders and get indications on piracy or jamming transponders.

Blind Scan: 12333 MHz 7%

TP	Frequency	Symbol Rate	Standard	Modulation	Code Rate	Pilots	Roll Off	Spectrum	E_b/N_0	C/N	Status
1	12304	27500	DVB-S2	QPSK	9/10	off	0.35	normal	15.3	16.7	ok
2	12343	30000	DVB-S2	8PSK	2/3	off	0.20	normal	7.5	9.3	ok
3	12382	27500	DVB-S2	8PSK	3/4	on	0.35	normal	10.9	13.1	ok
4	12421	27500	DVB-S	QPSK	3/4	---	0.35	normal	15.1	15.4	ok
5	12460	27500	DVB-S	QPSK	3/4	---	0.35	normal	16.1	16.4	ok
6	12515	21999	DVB-S	QPSK	5/6	---	0.35	normal	15.7	16.4	ok
7	12544	22000	DVB-S	QPSK	5/6	---	0.35	normal	14.4	15.1	ok
8	12574	22000	DVB-S2	8PSK	2/3	on	0.35	normal	14.2	15.9	ok
9	12603	22000	DVB-S	QPSK	5/6	---	0.35	normal	15.5	16.2	ok
10	12633	22000	DVB-S	QPSK	5/6	---	0.35	normal	15.3	16.0	ok
11	12662	21999	DVB-S	QPSK	5/6	---	0.35	normal	14.8	15.5	ok
12	12692	21999	DVB-S	QPSK	5/6	---	0.35	normal	14.3	15.0	ok

Blind Scan loop: 2

As ASTRO streamers are made for highest reliability and to provide stable output parameters for standard operation, this fact can be obstructive in case that slight deviations in the received signal have to be monitored, and the basis for this monitoring is the outgoing IP stream. The operator can chose from signalling the changes, but operation goes on, or muting the corresponding IP output stream for the following management system.

It is also possible to differentiate between different parameters to be monitored, and for satellite frequency and symbol ratio it is possible to define a range in which the operation is working normal and leaving this range leads to the required error message.

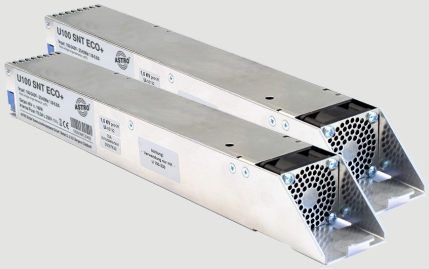
DVBS1.1 Settings

Property	Value			
Input	1 - Astra_19,2GO.sat - horizontal / High			
Transponder	ZDF Vision (TP077)			
Manual Settings	Frequency	Symbol Rate	TS-ID	ON-ID
	11954 MHz	27500 kBaud	1079 dec.	1 dec.
Multiple Input Stream (MIS)	○on ◉off	Input Stream Identifier (ISI): 0		
Physical Layer Scrambling (PLS)	○on ◉off	Gold Code: 0		
Monitoring	◉on ○off	☑ Muting		
Status	monitoring			

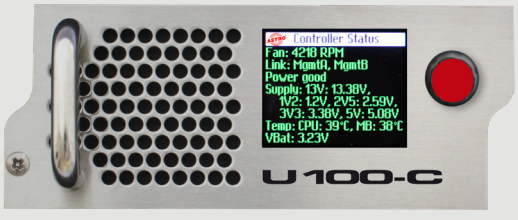
Miscellaneous features

Front display to show the operational status like IP configuration, error messages, firmware version and more…

Redundant power supply by using two U 100-SNT ECO PSU per U 100-230 base unit. Optional 48 VDC base unit available



Overall controller module for time controlled updates, replacement switching and centralized head end management



Specifications

Type		U 144-X	U 148-X	U 149-X
Order number		380 138	380 139	380 152
EAN-Code		4026187194475	4026187194482	4026187198923
Number of DVB-S2 input signals		4		
Number of DVB-S2 transponders		4	8	16
Number of IP output streams		8 MPTS, 504 SPTS (SPTS license afforded)		
Interfaces				
Management		2 x 100 Base-T Ethernet (RJ 45)		
Data		2 x 1000 Base-T Ethernet (RJ 45)		
Protocols		IEEE802.3 Ethernet, RTP, ARP, IPv4, TCP/UDP, HTTP, SNTP, IGMPv3		
Transportstream Encapsulation				
Protocols		UDP, UDP / RTP, 1-7 packets, FEC		
Packet length	[Bytes]	188 / 204		
DVB demodulator				
DVB modulation		QPSK; 8PSK; 16APSK; 32APSK; S2X ready		
Input frequency range	[MHz]	950 - 2150		
Input level	[dBµV]	40 - 80		
SAT-IF input	[Ω]	75, F-jack		
Reflection loss	[dB]	≥ 10		
Input symbol rate	[MS/s]	max. 45,0 (depends on DVB-S2 Modulation); max. 70 @ high data rate mode (U 149-X)		
TS bandwidth	[Mbit/s]	≤ 100		≤ 50 @ high density mode ≤ 200 @high bandwidth mode
DVB-S Roll-off-factors		0,20; 0,25; 0,35		
DVB-S LDPC		1/2; 1/3; ¼; 2/3; 2/5; 3/5; 4/5; 5/6; 8/9; 9/10 (depends on DVB-S2 Modulation)		
Viterbi decoding (according DVB standard)		1/2; 2/3; 3/4; 5/6; 7/8; automatically / manually		
DiSEqC Control		☑		
RF inputs				
Connectors	[Ω]	75, 4 x F-jack		
Common data				
Current consumption at 48 V	[mA]	530	580	650
Power consumption at 36 - 60 V	[W]	25 per module	28 per module	32 per module
Input voltage	[V]	36 - 60		
Dimensions		1 RU, 19 inch		
Ambient temperature	[°C]	0 ... +45		

Made in Germany

The ASTRO IP head-end modules handle all output signals distributed in standard CATV networks: QAM, PAL, COFDM and FM. Based on the proven Direct Digital® system, all the signal converters provide outstanding parameters. For generating IP signals, different types of IP streamers are available. These are equipped with DVB-S2 or DVB-C/T2 frontends and offer high signal density. All head-end components from ASTRO are “Made in Germany”.

Direct Digital by ASTRO®

Direct Digital contains the complete digital modulation of the output signal. In addition, this FPGA-based technology offers outstanding signal parameters, independent of temperature and aging. The modulators are implemented software-based, which brings a number of advantages. The standard of output signals can be changed by programming the modules via a web interface. No adaptation of hardware is necessary.

From city carriers and broadcasters directly to your hotel

The streamer technology, which has proven itself with large city network operators and broadcasters, is now also available as a top solution for professional hotel operations. The headend systems are extremely space and energy saving.Thus streaming of SAT in IP signals with highest reliability and top transmission values is possible for every hotel operator today and also in the future.Thus TV enjoyment is guaranteed for every hotel guest.

New streaming solution – Made in Germany

Front side of the U100-230 base unit, equipped with three U 149-X modules

Introductory offers

Package 1 with 16 transponders
(Order number 381 491)

- 1 x U 149-X SAT in IP streamer module
- 2 x U 100-SNT ECO power supply unit
- 1 x base unit U 100-230, 19 inch

Package 2 with 32 transponders
(Order number 381 492)

- 2 x U 149-X SAT in IP streamer module
- 2 x U 100-SNT ECO power supply unit
- 1 x base unit U 100-230, 19 inch

Package 3 with 48 transponders
(Order number 381 493)

- 3 x U 149-X SAT in IP streamer module
- 2 x U 100-SNT ECO power supply unit
- 1 x base unit U 100-230, 19 inch

PHILIPS Panasonic

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