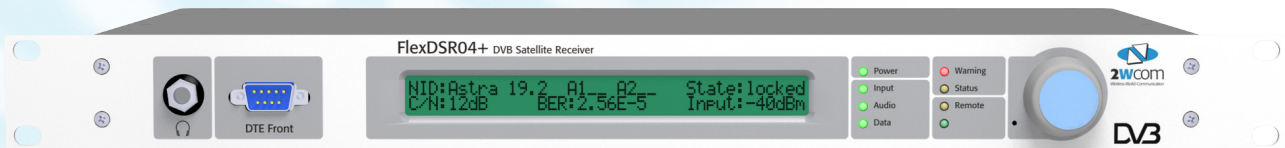



# FlexDSR04+ DVB Satellite Receiver

Professional DVB-S/S2 Audio Receiver



 Energy efficient,  
no moving parts, no fan

## Transport stream inputs

- DVB-S/S2 (single and multiple channel per carrier)
  - 0.128 .. 45 MSym/s (QPSK, 8PSK)
  - 0.064 .. 45 MSym/s (Tuner modules 16 & 32 APSK optional)
  - 0.064 .. 45 MSym/s (Full double tuner modules 16 & 32 APSK optional)
- ASI
- Gigabit IP

## Redundancy / local commercials

- Optional: IP-audio streaming input as back-up solution
- Optional: Enhanced integrated memory as additional back-up solution

## Audio output

- 4 balanced analogue or digital AES/EBU (**integrated XLR connector**)

## Data output (e.g. RDS, DRM)

- Serial, IP
- up to 9 serial RS232 outputs
- up to 24 floating relay contacts
- Optional: High Speed IP Data (MPE)

## Transport stream output

- ASI
- Gigabit IP

## Decoding

- Audio decoding (professional MPEG decoder): MPEG 1/2 Layer 1, 2, 3 (optional: MPEG 2/4 AAC LC/LD, HEV1&v2, linear PCM, E-aptX)
- RDS decoding (built in RDS/UECP decoder)
- Optional: BISS decryption

## Control

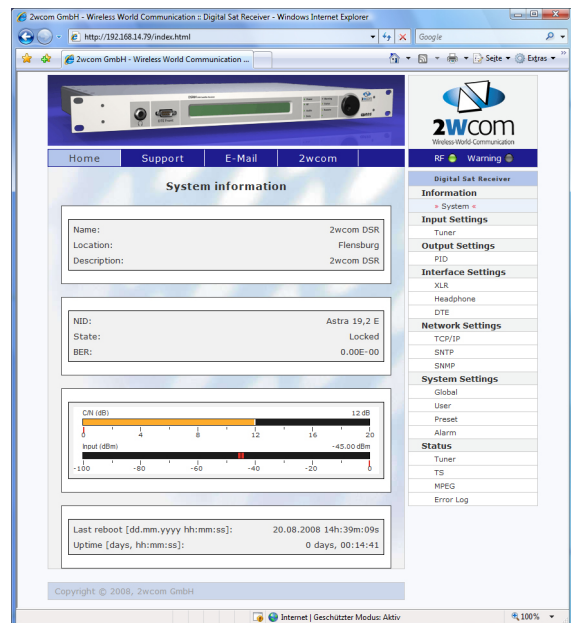
- Prepared for multiple users/customers on one physical device
- Via web interface
- Optional: Satellite In-Band Remote Control SIRC (PID switching for traffic information, relay switching, regional advertising, ..)
- SNMP v2c

## Monitoring

- RF and MPEG parameters via SNMP v2c and relay
- Monitoring of up to eight audio programs via IP


## Sync FM

- Optional: synchronized FM transmission within FM SFN Networks



# Customize your Digital Satellite Receiver

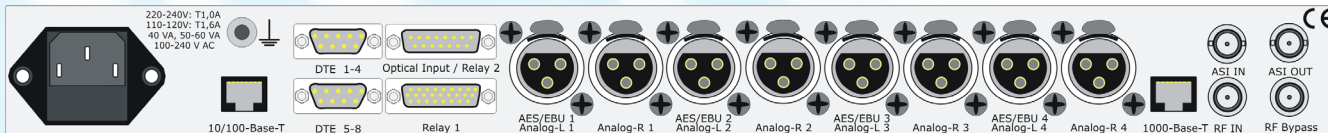


	Feature List / Model	DSR01 Basic	FlexDSR02/04+
<b>Standard</b>	DVB-S/S2 tuner (0.256 .. 45 Msym/s)	X	X
	Headphone output	X	X
	2x serial Output for RDS (+1 front: service)	X	X FlexDSR04+: 8x
	7x opto isolated in and 12x floating relays out	X	X
	1x Audio interface analogue or 1x digital AES/EBU	X	X FlexDSR04+: 4x
	15 kHz low passfilter	X	X
	Adjustable audio delay	X	X
	TCP/IP and Webinterface	X	X
	Display and Jogwheel	X	X
	SNMPv2c	X	X
	RDS/UECP monitor	X	X
	DVB-ASI (in- and output)		X
	Transport stream over Gigabit IP (in and out)		X 
<b>Options</b>	<b>Transportstream input</b>		
	DVB-S/S2 Tuner incl. low symbol rates (min. 128 kSym/s)	X	X
	DVB-S/S2 Tuner module 16 APSK A/B switching and PL scrambling	X	X
	<b>Redundancy Inputs</b>		
	IP-audio streaming input as a back-up solution	X	X
	Enhanced integrated memory as additional back-up solution	X	X
	<b>Audio output</b>		
	2x X.21 interfaces	X <sup>1)</sup>	X <sup>1)</sup> FlexDSR04+: Not available
	Additional 1x audio interface analogue and 1x AES/EBU	X	X FlexDSR04+: Not available
	<b>Data output</b>		
	IP data output (e.g. RDS, DRM)	X	X
	up to 4 RS232 outputs and 24 relays (in- and output)	X <sup>2)</sup>	X <sup>2)</sup>
	2 additional RS232 outputs	X <sup>2)</sup>	X <sup>2)</sup>
	<b>Monitoring</b>		
	IP audio streaming for monitoring purpose	X	X
	<b>Decoding</b>		
	Audio decoding: MP2/4/AAC-LC/AAC+ HE v1 & v2	X	X
	<b>Control</b>		
	In-Band Control via Satellite (e.g. relay switching, regional advertising)	X	X
	Central server for satellite In-Band Control (generation of network control data) <i>only in combination with option In-Band Control via Satellite</i>	X	X
	<b>Scrambling</b>		
CI Interface CAM		X	
2wcom encryption	X	X	
BISS decryption		FlexDSR04+ only	

\* limited upgradeability

1) X.21: possible development - on request only

2) RS232: cannot be combined with X.21 output



Rear view FlexDSR04+ DVB Satellite Receiver

## FlexDSR04+ DVB Satellite Receiver – Technical Details

### Inputs

<b>RF</b>	F-jack female tuner A (Tuner B optional)
Frequency	950 .. 2.150 MHz, step 1 kHz
Input Level, impedance	all LNB oscillator frequencies possible
LNB Control	-75 .. -20 dBm, 75 Ω
Noise Figure	13 V vertical, 18 V horizontal, off
	0 kHz low band, 22kHz high band
	typical 6dB, max. 12 dB
<b>ASI</b>	
Data Connector	MPEG2 TS
Connector	BNC 270 Mbps
<b>Gigabit IP</b>	
Data Type	MPEG TS or RTP, UDP, Audio
	Auto Switching 10/100/1000 BASE-T
	Unicast, Multicast

### Redundancy Input

<b>IP</b>	
Data Type	Shoutcast ICY Audio
	Auto Switching 10/100 BASE-T

### Internal Memory

Data Size	internal Audio Files
Type	1 GB .. 64 GB (other sizes on request)
	Professional FlashCard

### Outputs

<b>Gigabit IP</b>	
Data Connector	MPEG TS or MPE
Type	RJ45
	Auto switching 10/100/1000

### ASI

Data Connector	MPEG2 TS
	BNC 270 Mbps
	BASE-T, Unicast, Multicast

### Audio

Digital reference	-9 dBFS (adjustable)
Volume	-32 .. +6 dB
Filtering	Switchable 15 kHz Low-Pass
Harmonic distortion	<0.05 % / <-66 dB (40 Hz .. 10 kHz)
Frequency response	<0.2 dB (20 Hz .. 20 kHz)
Digital	AES/EBU, 110 Ω bal., integrated XLR-3
	4x Stereo
Analogue	L/R, <20 Ω bal., 600 Ω compatible
	integrated XLR-3, 4x Stereo
Headphone	L/R, <10 Ω, 6.3 mm

### Control & Monitor

#### Ethernet

Data optional:	Controlling and Setup functions
	Private data, MPEG ancillary data,
	UECP/RDS, MPEG audio (acc. to TR
	101 154)
Connector Type	RJ45
	Auto Switching
	10/100 BASE-T
Protocol	HTTP, SNMPv2c, SMTP, UDP

#### Contact closure

Inputs	7 opto isolated inputs
	(excludes option: 24 relay contacts)
	15 pole sub-D female
Outputs	12 floating relays (10x SPST, 2x SPDT)
	(for DC: max. 30 V, 1 A, 10 W)
	26 pole sub-D male
optional:	24 floating relays
	(excludes: 7 opto isolated inputs)

#### Serial

Data	9x RS-232C (1 front, 8 rear)
	(1 or 2 breakout-cable mandatory)
	Private data, MPEG ancillary data,
	UECP/RDS (acc. to TR 101 154)
Connector	9 pole sub-D male
Transmission rate	1200 to 115200 baud, asynchronous

#### Front panel

LCDisplay	2x 40 characters
Jog Wheel	Impulse, ENTER button
8 LEDs	Power, Signal, Warning, Status, Alarm,
	Remote

### Satellite Modulation

#### Tuner option 1 (standard)

<b>DVB-S (EN 300 421)</b>	
Standard Modulation/Symbol rate	QPSK (0.128 .. 45 MSym/s)
Roll-off	0.35
FEC	Viterbi, Reed Solomon
	1/2, 2/3, 3/4, 5/6, 6/7, 7/8
<b>DVB-S2 (EN 302 307)</b>	
Standard Modulation/Symbol rate	QPSK (0.128 .. 35 MSym/s)
FEC	LDPC, BCH
	1/2, 3/5, 2/3, 3/4, 4/5,
	5/6, 8/9, 9/10
Modulation/Symbol rate	8PSK (0.128 .. 31 MSym/s)
FEC	LDPC, BCH
	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
Roll-off	0.20, 0.25, 0.35

#### Tuner option 2 (optional)

(High performance & Advanced DVB-S2 processing functions)

<b>DVB-S (EN 300 421)</b>	
Modulation/Symbol rate	QPSK (0.064 .. 45 MSym/s)
Roll-off	0.35
FEC	Viterbi, Reed Solomon
	1/2, 2/3, 3/4, 5/6, 6/7, 7/8
<b>DVB-S2 (EN 302 307)</b>	
Modulation/Symbol rate	QPSK (0.064 .. 45 MSym/s)
	8PSK (0.064 .. 45 MSym/s)
	16 APSK (0.064 .. 45 MSym/s)
Modulation type	CCM
Frame type	Short, Normal
Roll-off	0.20, 0.25, 0.35
FEC	LDPC, BCH
	1/4, 1/3, 2/5, 1/2, 3/5, 2/3,
	3/4, 4/5, 5/6, 8/9, 9/10
Transport stream processing	Single Transport Stream
PL scrambling	ID 0 .. 262144
Input switching	loop through, A/B switch (optional)

#### Advanced processing functions (optional)

Modulation/Symbol rate	32 APSK (0.064 .. 38 MSym/s)
Modulation Type	VCM, ACM
Transport stream processing	Single and Multiple Transport stream /
	Single and Multiple Generic stream

#### All tuners

IF filter bandwidth	automatic selection
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### MPEG decoding

acc. to ETSI TR 101 154	
No. of decoders	4
adjustable Delay	10 .. 1000 ms
Codecs	MPEG 1&2 Layer 1, 2, 3
optional:	MPEG 2/4 AAC LC/LD, HEV1&v2,
	linear PCM, E-aptX, other codecs
Analogue & digital audio data rate	32 .. 384 kbps, selectable
<b>Audio Performance</b>	
Output Mode	Mono, Dual Mono, Stereo
Peak Output level	+18 dBu (optional +22 dBu) into 600Ω
Sampling rate	32, 44.1 or 48 kHz
Frequency response	0,2 dB; 20 Hz .. 20 kHz
Total harmonic distortion (THD)	< 0,05 %; 40 Hz .. 10 kHz
Cross Talk	1kHz: > 100 dB, L&R
	20 Hz .. 20 kHz: > 75 dB, L&R
Signal to noise ratio	Digital: > 105 dB
(A-weighted)	Analogue: > 95 dB

### General data

Power consumption	40 VA
Case dimensions	19", 1 HU, 310/424/484 mm
Weight	<4 kg
Housing	steel plate (aluminum-zinc coated)
Operating temp. range	0 .. +45°C
Storage temp. range	-40 .. +70°C
Power supply	internal, 90 .. 260 V, 47 .. 63 Hz
Languages	English

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These data are subject to  
modifications and amendments.  
Errors excepted



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Wireless-World-Communication