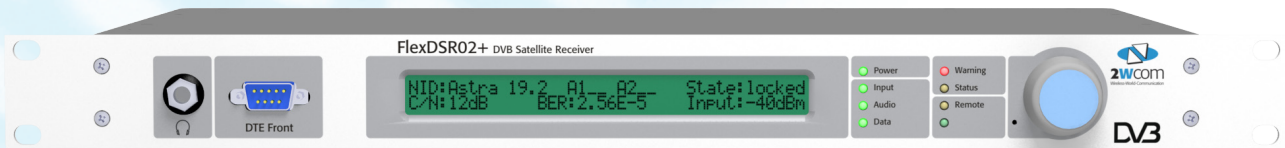


FlexDSR02+ DVB Satellite Receiver

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

- 1-2 balanced analogue and digital AES/EBU (integrated XLR-3 connector)

Data output (e.g. RDS, DRM)

- Serial, IP (on request X.21 interface)
- up to 4 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)
- Simultaneous decoding of 2 different transport streams (optional)

Control

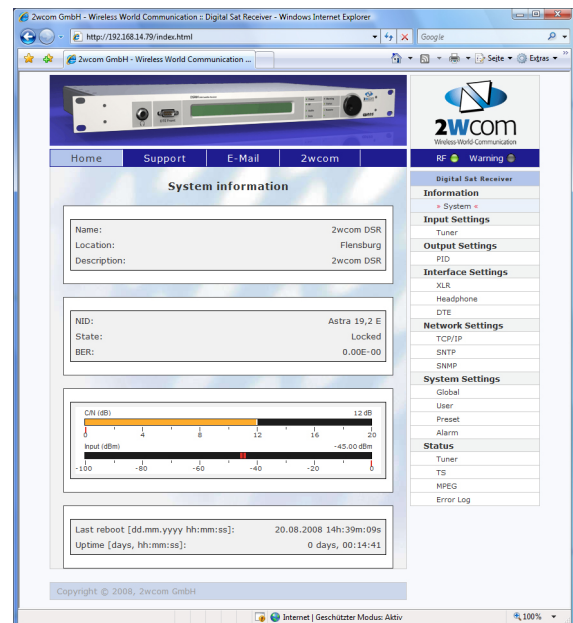
- Prepared for multiple users/customers on one physical device
- Via web interface
- FlexSource-SW
- Optional: Satellite In-Band Remote Control SIRC (PID switching for traffic information, relay switching, regional advertising, ..)
- SNMP v2c

Monitoring

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

Sync FM

- Prepared for synchronized FM transmission within FM SFN Networks



Customize your Digital Satellite Receiver

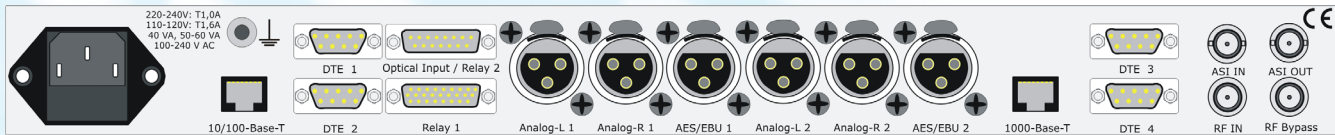


	Feature List / Model	DSR01 Basic	FlexDSR02/04+
Standard	DVB-S/S2 tuner (0.256 .. 45 Msym/s)	X	X
	Headphone output	X	X
	2x serial Output for RDS (+1 front: service)	X	X FlexDSR04+: 8x
	7x opto isolated in and 12x floating relays out	X	X
	1x Audio interface analogue or 1x digital AES/EBU	X	X FlexDSR04+: 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
Options	Transportstream input		
	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
	Redundancy Inputs		
	IP-audio streaming input as a back-up solution	X	X
	Enhanced integrated memory as additional back-up solution	X	X
	Audio output		
	2x X.21 interfaces	X ¹⁾	X ¹⁾ FlexDSR04+: Not available
	Additional 1x audio interface analogue and 1x AES/EBU	X	X FlexDSR04+: Not available
	Data output		
	IP data output (e.g. RDS, DRM)	X	X
	up to 4 RS232 outputs and 24 relays (in- and output)	X ²⁾	X ²⁾
	2 additional RS232 outputs	X ²⁾	X ²⁾
	Monitoring		
	IP audio streaming for monitoring purpose	X	X
	Decoding		
	Audio decoding: MP2/4/AAC-LC/AAC+ HE v1 & v2	X	X
	Control		
	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
Scrambling			
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 FlexDSR02+ DVB Satellite Receiver
(For full double tuner: RF IN = RF A / RF Bypass = RF B)

FlexDSR02+ DVB Satellite Receiver – Technical Details

Inputs

RF	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

ASI

Data Connector	MPEG2 TS BNC 270 Mbps
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Gigabit IP

Data Type	MPEG TS or RTP, UDP, Audio
	Auto Switching 10/100/1000 BASE-T Unicast, Multicast

Redundancy Input

IP	Shoutcast ICY Audio
Data Type	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

Gigabit IP

Data Connector Type	MPEG TS or MPE RJ45
	Auto switching 10/100/1000 BASE-T, Unicast, Multicast

ASI

Data Connector	MPEG2 TS BNC 270 Mbps
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Audio

Digital reference Volume	-9 dBFS (adjustable)
Filtering	-32 .. +6 dB
Harmonic distortion	Switchable 15 kHz Low-Pass
Frequency response	<0.05 % / <-66 dB (40 Hz .. 10 kHz)
Digital	<0.2 dB (20 Hz .. 20 kHz)
Analogue	AES/EBU, 110 Ω bal., 600 Ω comp. Integrated XLR-3, 1x Stereo (opt. 2x) L/R, <20 Ω bal., 600 Ω compatible, Integrated XLR-3, 1x Stereo (opt. 2x) L/R, <10 Ω, 6,3 mm
Headphone	

X.21* (* possible development - may be changed for RS232 interfaces)

Data Connector	MPEG Audio 15 pole sub-D male
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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
Protocol	Auto Switching 10/100 BASE-T 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) 3x RS-232C (1 front, 2 rear)

Serial

optional: Data	2x additional RS-232C (rear) Private data, MPEG ancillary data, UECP/RDS (acc. to TR 101 154)e
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)

DVB-S (EN 300 421)	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

DVB-S2 (EN 302 307)

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)

DVB-S (EN 300 421)	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

DVB-S2 (EN 302 307)

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)
Dual input tuning/decoding	Full dual tuner for parallel decoding of 2 transport streams (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

No. of decoders	acc. to ETSI TR 101 154 up to 2
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
Audio Performance	
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 (A-weighted)	Digital: > 105 dB
	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

Version 19.06.2018
These data are subject to modifications and amendments.
Errors excepted



2WCOM
Wireless-World-Communication