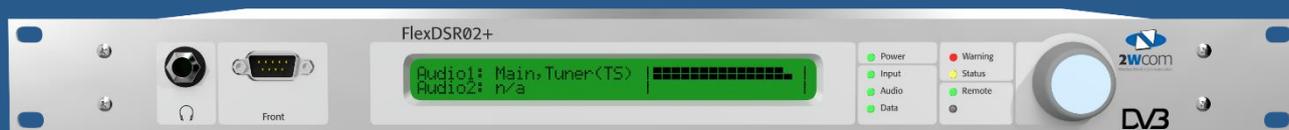


FlexDSR02+ DVB satellite receiver

Professional DVB-S/S2 audio receiver



FlexDSR02+ DVB satellite receiver



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

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

Audio output

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

Data output (e.g. RDS, DRM)

- ▶ Serial, IP
- ▶ 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 / local commercials

- ▶ Prepared for multiple users/customers on one physical device
- ▶ Via web interface
- ▶ Optional: SIRC - Satellite In-Band Remote Control (PID switching for traffic information, relay switching, regional advertising, ..)
- ▶ New! SIRC's Google maps feature offers the possibility to distribute regionalized commands or actions and to receive e.g. health reports from satellite receivers of a certain region.
- ▶ 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

Standard

Feature list	DSR01 Basic	FlexDSR02+/04+
DVB-S/S2 tuner (128 kSym/s - 45 Msym/s)	X	X
Headphone output	X	X
2x serial Output for RDS (+1 front: service)	X	X
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 pass filter	X	X
Adjustable audio delay	X	X
TCP/IP and web interface	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

Feature list	DSR01 Basic	FlexDSR02+/04+
Transportstream input		
DVB-S/S2 tuner incl. low symbol rates (128 kSym/s – 45 MSym/s)		X
DVB-S/S2 tuner module 16 APSK - A/B switching and PL scrambling		FlexDSR02+ only
Redundancy input		
IP-audio streaming input as a back-up solution	X	X
Enhanced integrated memory as additional back-up solution	X	X
Audio output		
Additional 1x audio interface Analogue and 1x AES/EBU	X	X→not FlexDSR04+
Data output		
IP data output (e.g. RDS, DRM)	X	X
Up to 4 RS232 outputs and 24 relays (in- and output)	X	X
2 additional RS232 outputs	X	X
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) only in combination with option in-band control via satellite	X	X
Scrambling		
2wcom encryption	X	X
BISS decryption		FlexDSR04+ only



Technical details 1/3



Inputs

RF	F-jack female tuner A (Tuner B optional)
Frequency	950 .. 2.150 MHz, step 1 kHz all LNB oscillator frequencies possible
Input Level, impedance	-75 .. -20 dBm, 75 Ω
LNB control	13 V vertical, 18 V horizontal, off 0 kHz low band, 22kHz high band
Noise figure	typical 6dB, max. 12 dB

ASI

Data	MPEG2 TS
Connector	BNC 270 Mbps

Gigabit IP

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

Redundancy input

IP

Data	Shoutcast ICY Audio
Type	Auto switching 10/100 BASE-T

Internal memory

Data	Internal audio files
Size	1 GB .. 64 GB (other sizes on request)
Type	Professional flashcard

Outputs

Gigabit IP

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

ASI

Data	MPEG2 TS
Connector	BNC 270 Mbps

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., 600 Ω comp. Integrated XLR-3, 1x stereo (opt. 2x)
Analogue	L/R, <20 Ω bal., 600 Ω compatible Integrated XLR-3, 1x stereo (opt. 2x)
Headphone	L/R, <10 Ω, 6.3 mm
X.21* (* possible development - may be changed for RS232 interfaces)	
Data	MPEG audio
Connector	15 pole sub-D male



Technical details 2/3

Control & monitor

Ethernet

Data	Controlling and setup functions
Optional:	Private data, MPEG ancillary data, UECP/RDS, MPEG audio (acc. to TR 101 154)
Connector	RJ45
Type	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)

Optional:	26 pole sub-D male 24 floating relays (excludes: 7 opto isolated inputs)
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Serial	3x RS-232C (1 front, 2 rear)
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Optional:	2x additional RS-232C (rear)
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Data	Private data, MPEG ancillary data, UECP/RDS (acc. to TR 101 154)e
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Connector	9 pole sub-D male
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Transmission rate	1200 to 115200 baud, asynchronous
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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	QPSK (0.128 .. 45 MSym/s)
modulation/symbol rate	
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	QPSK (0.128 .. 35 MSym/s)
modulation/symbol rate	
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)
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FEC	LDPC, BCH 3/5, 2/3, 3/4, 5/6, 8/9,9/10
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Roll-off	0.20, 0.25, 0.35
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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)



Technical details 3/3

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
MPEG decoding	Acc. to ETSI TR 101 154
No. of decoders adjustable delay	Up to 2 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, Depth: 310 mm, Width: 424 mm, Front panel: 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