

# Challenge Series

## Satellite High Speed DVB-S2 Demodulator

### SDD3



#### CCM, VCM, ACM Functionality

The satellite high speed DVB-S2 demodulator SDD3 allows demodulation of DVB-S and DVB-S2 signals, where in DVB-S2 all standard modulation types and FEC schemes are supported. The demodulator can be used for receiving digital video broadcast contribution or distribution signals as MPEG transport streams. Among other applications it is suitable for video reception sites, monitoring facilities or program exchange points. Besides standard CCM it supports also VCM and ACM using a baseband frame output (option BBO).

#### L-Band input, standard outputs

The demodulator accepts an L-Band signal in the range from 950 to 2150 MHz on two inputs (L-Band unit) or alternatively in between 50...180 MHz (V-band unit). It supports QPSK modulation for DVB-S and QPSK, 8PSK, 16APSK, 32APSK modulation for DVB-S2 transmissions. The output MPEG transport stream is provided through 2 ASI interfaces or as Video over IP stream through a Gigabit-Ethernet interface.

#### Operating and control – easy integration into your system

The demodulator can be operated via the push buttons on the front panel using self-explanatory display menus or via remote control (RS232, RS422/485, TCP/IP (over Ethernet)). For the remote control either addressable, packet based commands, a WEB interface (HTTP web browser interface) or SNMP can be used. For SNMP MIBS are available. Detailed monitoring of signal quality and receive parameters is possible. A summary alarm output (dual change over switch contacts) is provided, which allows easy setup of redundant configuration as well as integration into alarm systems.

#### Key features

- DVB Satellite demodulator for digital TV satellite signals
- DVB-S2 compliant (EN 302 307)
- DVB-S compliant (EN 300 421)
- QPSK demodulation (DVB-S)
- QPSK / 8PSK / 16APSK / 32APSK demodulation (DVB-S2)
- Normal and short FEC frames, Pilots on or off (DVB-S2)
- Physical layer framing (PL descrambling with codes 0..262141) according to DVB-S2 standard
- Roll-Off: 35%, 25%, 20%
- ASI and Gigabit Ethernet electrical output interfaces
- Symbol rates from 60 ksps to 60 Msps
- BISS-E decryption (option), supports multi program transport stream
- Remote control through RS232, RS422/485 (2-wire or 4-wire) interfaces, TCP/IP over Ethernet, Web browser interface, SNMP (MIBs are provided).
- Summary alarm output (dual change over switch contacts)
- LNB DC supply 14V / 18 V DC, 22 kHz on/off
- Operating temperature range 0°C to 50°C (32°F to 122°F)
- CE compliant
- **3 years warranty**

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#### DVB Demodulator L-Band and IF Input

Demodulator Type:	SDD3-V-50 or SDD3-V-75	SDD3-L
IF-Input Frequency:	50...180 MHz	950 MHz to 2150 MHz
IF-Input Characteristics:	Impedance: 50 $\Omega$ or 75 $\Omega$ Return Loss: >18 dB Input Power: -60 dBm ... -15 dBm IF-Connector: BNC female	Impedance: 75 $\Omega$ Return Loss: >13 dB Input Power: -70 dBm ... -20 dBm IF-Connector: 2x F female, input selectable LNB DC-Feed: 13.5V / 450mA or 18V / 450mA switchable, 22 kHz tone on/off, short circuit protected
Symbol Rate:	DVB-S: 60 ksps - 60 Msps DVB-S2: 60 ksps - 60 Msps (QPSK, 8PSK) 60 ksps - 45 Msps (16APSK) 60 ksps - 40 Msps (32APSK) Step size: 1 sps	
Demodulation / Decoding DVB-S2:	Outer BCH Code: FEC-Frames Inner LDPC Code: QPSK 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8PSK 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 16APSK 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 32APSK 3/4, 4/5, 5/6, 8/9, 9/10 automatically selected Physical Layer Framing: CCM and VCM/ACM functionality Pilots processing: yes Physical Layer Scrambling: N=0...262141 all according EN 302307	nldpc = 64800 (normal FEC Frame) nldpc = 16200 (short FEC Frame) automatically selected
Demodulation / Decoding DVB-S:	Outer Reed Solomon Code: 188/204, T=8 Convolutional Interleaving: Depth I=12 Inner Code: QPSK 1/2, 2/3, 3/4, 5/6, 6/7, 7/8 (Convolutional K=7) automatically selected all according EN300421	
Transport Stream Output Interface:	2x DVB-ASI-electrical (BNC female 75 $\Omega$ ) 1x RTP/UDP IP over Ethernet (RJ-45, 10/100/1000 Mbit/s auto sensing) according to IETF RFC 2250.	
Baseband Frame Output:	Instead of Transport Stream output through ASI Interface (Option BBO)	
Transport Stream Security (Option BI):	BISS-E Scrambler, compliant to EBU Tech 3292 rev. 2 Supports 1 single or 1 multi program transport stream in BISS Mode 0, 1 and E BISS Mode 0: no scrambling, MPEG transport stream is transferred untouched BISS Mode 1: MPEG transport stream is scrambled using 12-hexadecimal-character Clear Session Word BISS Mode E: MPEG transport stream is scrambled using a session word which is derived from a 16-hexadecimal-character Encrypted Session Word and 14-hexadecimal-character Injected Identifier Max. input rate for Clear Session Word and Encrypted Session Word: - 10 times per 5 minutes - 1 time per 10 seconds	
Signal Spectrum Mask:	$\alpha$ = 0.35 according EN 300421 $\alpha$ = 0.25 according EN 301210 $\alpha$ = 0.20 according EN 302307	
Transport Stream Frames Size:	188 bytes	
Compliant with Standards:	EN 300421, EN 302307 EN 50083-9 (ASI electrical)	
Monitoring:	Es/N0, Eb/N0, signal input level, lock losses, TS packet errors, Viterbi/LDPC corrected bits, internal temperature, internal voltages, faults	
Configuration Memory:	16 programmable memory settings for configuration storage	
Monitoring and Control Interface:	Protocol: SNMP Connection: UDP over Ethernet (10 or 100 Mbit/s, auto sensing), connector RJ-45	
	Protocol: HTTP (web browser interface) Connection: TCP/IP over Ethernet (10 or 100 Mbit/s, auto sensing), connector RJ-45	
	Protocol: Multipoint Connection: RS232 or RS422/RS485 (configurable), connector DSUB09 female or TCP/IP over Ethernet (10 or 100 Mbit/s, auto sensing), connector RJ-45	
Alarm Interface:	Two potential free contacts (DPDT) , connector DSUB09 female	

Specifications continued next page

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Specifications continued:

<b>Temperature Range:</b>	0°C to 50°C operating -30°C to 80°C storage
<b>Relative Humidity:</b>	< 95% non condensing
<b>User Interface:</b>	LCD-Display 2 x 40 characters, 4 cursor keys, 2 function keys
<b>Power Input:</b>	85...264 V AC, 40...70 Hz, appr. 25 W / 35 VA
<b>Mains Fuse:</b>	2 x 2 A time-lag fuse
<b>Dimension and Weight:</b>	483 x 44 x 270 mm <sup>3</sup> , 1 RU (19") appr. 4.0 kg

Specifications are subject to change

**Order Information:**

**SDD3-V-50-[Options]**

V-Band Demodulator, IF Input 50 Ω

**SDD3-V-75-[Options]**

V-Band Demodulator, IF Input 75 Ω

**SDD3-L-[Options]**

L-Band Demodulator

**Possible Options are:**

**BI** (BISS descrambling)

**BBO** (Baseband Frame Output)



Trade Mark of the DVB Digital Video Broadcasting Project