

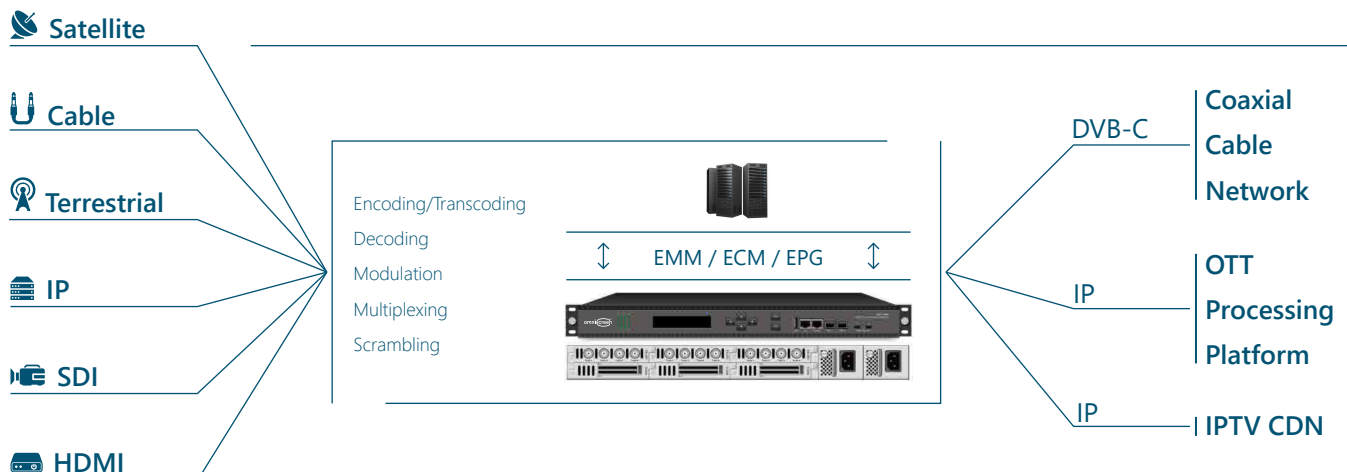
MODULAR CONTENT PROCESSOR



The Omniscreen Modular Content Processor is a compact and flexible solution for IPTV and digital TV headends and broadcast studios. OMCP-3000 is housed in a 1RU chassis with six optional module slots and dual redundant power supplies. OMCP-3000 integrates nearly all headend functions into a single unit providing signal reception, descrambling, encoding, transcoding, remultiplexing, scrambling and modulation.

Key Features:

- Modular design
- 6 I/O module slots and 1 extension module slot
- Up to 920 Mbit/s IP stream throughput per port
- Up to 256 MPTS/SPTS input streams
- Up to 512 MPTS/SPTS output streams
- DVB PSI/SI editing and regeneration
- PID remapping and filtering
- Dual hot-swappable PSU modules
- Management via front panel, Web and SNMP interfaces



Chassis Specification

Data Interfaces

Standard	IEEE 802.3, 1000 Base-T, Full Duplex
Max. Effective Bit Rate	920Mb/s
Data Protocol	UDP or RTP, SPTS or MPTS
Control Protocol	ICMP, ARP, IGMP v2/v3

Front Panel

TS/IP Connector Type	2 x SFP, 1000 Base-T.
CA Connector Type	1 x RJ-45, 10/100/1000 Base-T
Control Connector Type	1 x RJ-45, 10/100/1000 Base-T
Upgrade Connector Type	1 x USB
Debug Connector Type	2 x Mini USB
Display	2 x 20 characters LCD Display

Rear Panel

Module Slot	6 x Slots
Power Connector	2x IEC

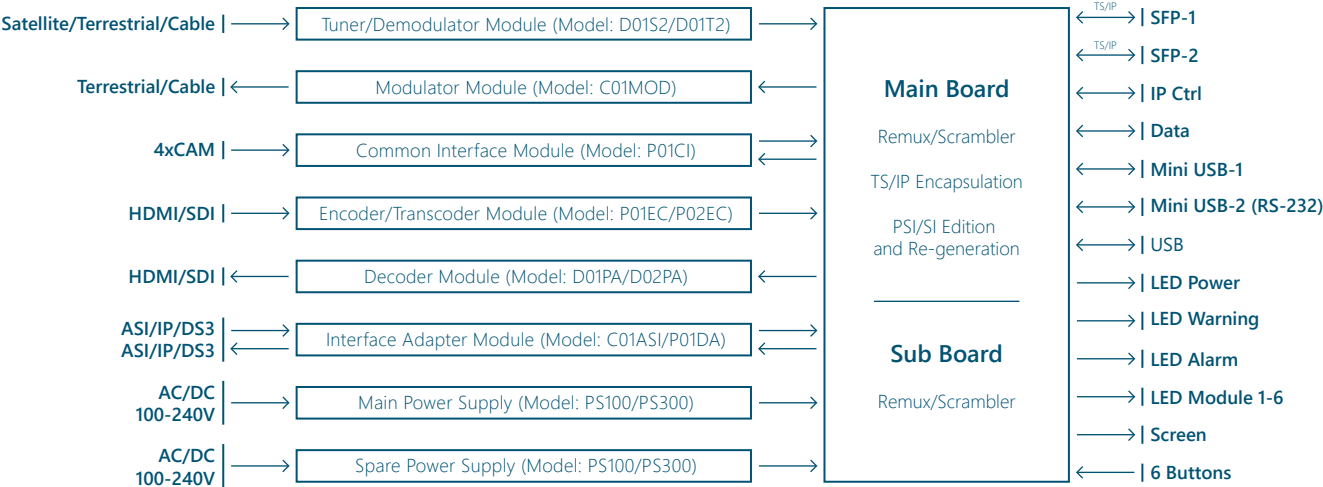
General

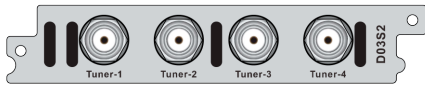
Power Supply	AC 100 - 240V 100W & 300W
Operating Temperature	0~45°C
Storage Temperature	-10 ~ 60°C
Operation Humidity	10 ~ 90%, (Non-condensed)
Dimensions	485 x 445 x 45

Optional Function Modules

Function	Model	Description
Demodulation/De-scrambling Modules	D01S2 D03S2 D01T2 P01CI	4 x DVB-S/S2 Demodulator Module 4 x DVB-S/S2/S2X Demodulator Module 4 x DVB-C/T Demodulator Module 4 x CI De-encryption Module
Encoding/Transcoding Modules	P01EC P02EC P02EC-Plus P01AT	4 x HDMI MPEG-2/H.264 HD/SD Transcoder/Encoder Module 4 x SDI MPEG-2/H.264 HD/SD Transcoder/Encoder Module 4x SDI MPEG-2 SD and H.264 HD/SD Encoder/8 channel transcoder Module 4 x H.265/AVS+/MPEG-2/H.264 HD/SD Transcoder Module
Decoding Modules	D01PA D02PA D03PA	2 x Channels Multi-format Signal HDMI Decoder Module 2 x Channels Multi-format Signal SD/HD SDI Decoder Module 4K H.265 Decoder Module
Modulation Modules	C01MOD C01TM C01IM	8 x QAM/2 x COFDM Modulator Module 4 x COFDM Modulator Module 2 x 32 IPQAM Modulator Module
In/Out Interface	C01ASI C01IP P01DA	5 x ASI In/Out Module 2 x DS3 Input/2 x DS3 Output/1 x ASI Adaptor Module 4 x SFP TS/IP Module
Multiplexing/Scrambling	P01MS	ReMUX & Scrambler Extension Module

Block Diagram





D01S2

4 x DVB-S/S2 Demodulator Module

Interface	4x F type female, 75Ω	LNB Polarity Selection Voltage	0, 13V, 18V selectable
Input Frequency Range	950~2150 MHz	LNB Band Selection Tone	0/22K selectable
Input Level	-65dBm~-25dBm	DiSEqC	DiSEqC 1.0
Symbol Rate	2~45MBaud(DVB-S QPSK), 2~31MBaud(DVB-S2 8PSK)	BISS-1/E Decrypt	Each tuner supports 40 PIDs maximum
Roll Off Factor	0.35(DVB-S QPSK), 0.35/0.25/0.2(DVB-S2 8PSK)	ISI ID	1~255
FEC Puncture Rate	2/3, 3/4, 5/6, 6/7, 7/8(DVB-S QPSK); 2/3, 3/4, 3/5, 5/6, 8/9, 9/10(DVB-S2 8PSK)	T2-MI de-encapsulator	Support



D03S2

4 x DVB-S/S2/S2X Demodulator Module

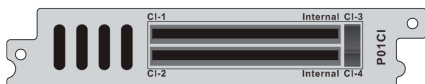
Interface	4x F type female, 75Ω	FEC Puncture Rate	2/3, 3/4, 3/5, 5/6, 8/9, 9/10 (DVB-S2 8PSK) 1/2, 213, 3/4, 5/6, 6/7, 7/8 (DVB-S QPSK) 64800 bits FECFRAME VCM and ACM (DVB-S2X)
Input Frequency Range	950~2150 MHz	LNB voltage	0/13V/18V
Input Level	-65dBm~-25dBm	LNB Band Selection Tone	0/22K
Symbol Rate	5~45MSps (DVB-S QPSK) 10~31MSps (DVB-S2 8PSK) 1~58MBaud (16APSK) 1~34MBaud (64APSK)	DiSEqC	DiSEqC 1.0
Roll Off Factor	0.35 (DVB-S QPSK) 0.35/0.25/0.2 (DVB-S2 8PSK) 0.35/0.25/0.2/ 0.15/0.1/ 0.05 (DVB-S2x)	BISS	BISS-1/E (up to 40 PIDs de-encryption per tuner input)
		T2-MI de-encapsulation	8 PLP IDs demodulation per tuner input
		ISI ID	1~255 user configurable



D01T2

4 x DVB-C/T Demodulator Module

Interface	4 x F type female, 75Ω	Bandwidth	6/7/8 MHz
Input Frequency Range	48~860 MHz (DVB-C)	FFT Mode	2K/8K (DVB-T)
Input RF level	-60~-20dBm	Guard Interval	1/4, 1/8, 1/16, 1/32 (DVB-T)
Symbol Rate	1.8~7MSps	FEC Code Rate	1/2, 2/3, 3/4, 5/6, 7/8 (DVB-T)
Constellation	16/32/64/128/256 QAM (DVB-C) QPSK/16 QAM/64 QAM (DVB-T)	BISS	BISS-1/E (up to 40 PIDs de-encryption per tuner input)



P01CI

4 x CI Descrambling Module

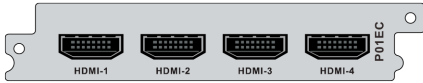
Interface	4 x Independent Common Interface (DVB-CI) slots	T2-MI de-encapsulation	8 PLP IDs demodulation from one TS
CI Decrypt	Multiple programs CAS or BISS-1/E De-encryption	Monitoring	CI Watchdog



C01ASI

5 x ASI In/Out Module

Interface	5 x BNC Type Female, 75Ω	Input or Output Bit Rate	≤ 216Mb/s
Standard	DVB-ASI, EN50083-9	T2-MI	Support
Input or Output	Switch by Web Control		



P01EC

4 x HDMI MPEG-2/H.264 HD/SD Transcoder/Encoder Module

Interface	4 x HDMI, type A
Coding Profile & Level	H.264/AVC BLP, MP, HP @ L4.0 or less & MPEG-2 MP@ML
Sampling Format	4:2:0
Video Resolution & Recommend Compression Bit Rate H.264	1080i (1920 x 1080) @25Hz, 29.97Hz, 30Hz: SMPTE274M: 1~13Mb/s 1080i (1440 x 1080) @25Hz, 29.97Hz SMPTE274M: 5~24Mb/s 720p (1280 x 720) @59.94Hz, 50Hz: SMPTE296M: 1~13Mb/s 480i (720 x 480) @29.97Hz: SMPTE656M: 600K~10Mb/s 576i (720 x 576) @25Hz: SMPTE656M: 600K~10Mb/s
Video Resolution & Recommend Compression Bit Rate MPEG-2	480i (720 x 480) @29.97Hz: SMPTE656M: 3M~10Mb/s 576i (720 x 576) @25Hz: SMPTE656M: 3M~10Mb/s
Vide Resolution Down Scaling	Vertical & Horizontal adjustable respectively (frame rate is not scalable)
Aspect Ratio	16:9, 4:3 selectable

Audio Input	Embedded
Coding Standard	MPEG1 Layer II MPEG-2/4 AAC-LC, HE-AAC (V1, V2)
Sampling Rate	48KHz
Recommend Compression Bit Rate	MPEG1 Layer II: 32~192Kbps (Mono), 64~384Kbps (Stereo), MPEG2/4 AAC-LC: 24~256Kbps (Mono), 48~512Kbps (Stereo) MPEG2/4 HE-AAC (V1/V2): 16~128Kbps(Mono), 32~256Kbps (Stereo)
Transcode Mode	H.264 to MPEG-2, H.264 to H.264, MPEG-2 to MPEG-2, MPEG-2 to H.264
Input	MPTS/SPTS, MPEG2 MP@ML MP@HL, MPTS/SPTS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not FMO, ASO & RS of Baseline)
Output	MPTS and/or un-stuffed TS, MPEG2 MP@ML MPTS and/or un-stuffed TS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not include FMO, ASO & RS of Baseline)



P02EC

4 x SDI MPEG-2/H.264 HD/SD Transcoder/Encoder Module

Interface	4 x SDI, BNC Type Female, 75Ω
Coding Profile & Level	H.264/AVC BLP, MP, HP @ L4.0 or less & MPEG-2 MP@ML
Sampling Format	4:2:0, 10-bit, YCbCr
Video Resolution & Recommend Compression Bit Rate H.264	1080i (1920 x 1080) @25Hz, 29.97Hz, 30Hz: SMPTE274M: 1~13Mb/s 1080i (1440 x 1080) @25Hz, 29.97Hz: SMPTE274M: 5~24Mb/s 720p (1280 x 720) @59.94Hz, 50Hz: SMPTE296M: 1~13Mb/s 480i (720 x 480) @29.97Hz: SMPTE656M: 600K~10Mb/s 576i (720 x 576) @25Hz: SMPTE656M: 600K~10Mb/s
Video Resolution & Recommend Compression Bit Rate MPEG-2	480i (720 x 480) @29.97Hz: SMPTE656M: 3M~10Mb/s 576i (720 x 576) @25Hz: SMPTE656M: 3M~10Mb/s
Vide Resolution Down Scaling	Vertical & Horizontal adjustable respectively (frame rate is not scalable)
Aspect Ratio	16:9, 4:3 selectable
Audio Input	SDI Embedded

Coding Standard	MPEG1 Layer II MPEG-2/4 AAC-LC, HE-AAC (V1, V2)
Sampling Rate	A8KHz
Recommend Compression Bit Rate	MPEG1 Layer II: 32~192Kbps (Mono), 64~384Kbps (Stereo), MPEG2/4 AAC-LC: 24~256Kbps (Mono), 48~512Kbps (Stereo) MPEG2/4 HE-AAC (V1/V2): 16~128Kbps (Mono), 32~256Kbps (Stereo)
Transcode Mode	H.264 to MPEG-2, H.264 to H.264, MPEG-2 to MPEG-2, MPEG-2 to H.264
Transcode Channels	4/8 (only P02EC-PLUS)
Input	MPTS/SPTS, MPEG2 MP@ML MP@HL, MPTS/SPTS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not FMO, ASO & RS of Baseline)
Output	MPTS and/or un-stuffed TS, MPEG2 MP@ML MPTS and/or un-stuffed TS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not include FMO, ASO & RS of Baseline)

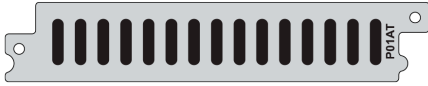


P02EC-Plus

4 x SDI MPEG-2 SD&H.264 HD/SD Encoder and 8 Channels Transcoder Module

Operational Mode	8 channels transcoding or 4 channels video with 2 pairs of stereo audio encoding
Interface	4 x SDI, BNC Type Female, 75Ω
Coding Profile & Level	H.264/AVC BLP, MP, HP @ L4.0 or less & MPEG-2 MP@ML
Sampling Format	4:2:0, 10-bit, YCbCr
Video Resolution & Recommend Compression Bit Rate H.264	1080i (1920 x 1080) @25Hz, 29.97Hz, 30Hz: SMPTE274M: 1~13Mb/s 1080i (1440 x 1080) @25Hz, 29.97Hz: SMPTE274M: 5~24Mb/s 720p (1280 x 720) @59.94Hz, 50Hz: SMPTE296M: 1~13Mb/s 480i (720 x 480) @29.97Hz: SMPTE656M: 600K~10Mb/s 576i (720 x 576) @25Hz: SMPTE656M: 600K~10Mb/s
Video Resolution & Recommend Compression Bit Rate MPEG-2	480i (720 x 480) @29.97Hz: SMPTE656M: 3M~10Mb/s 576i (720 x 576) @25Hz: SMPTE656M: 3M~10Mb/s
Vide Resolution Down Scaling	Vertical & Horizontal adjustable respectively (frame rate is not scalable)
Aspect Ratio	16:9, 4:3 selectable

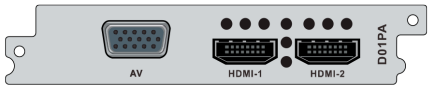
Audio Input	SDI Embedded
Coding Standard	MPEG1 Layer II MPEG-2/4 AAC-LC, HE-AAC (V1, V2)
Sampling Rate	48KHz
Recommend Compression Bit Rate	MPEG1 Layer II: 32~192Kbps (Mono), 64~384Kbps (Stereo), MPEG2/4 AAC-LC: 24~256Kbps (Mono), 48~512Kbps (Stereo) MPEG2/4 HE-AAC (V1/V2): 16~128Kbps (Mono), 32~256Kbps (Stereo)
Second sound encoding	Support
Transcode Mode	H.264 to MPEG-2, H.264 to H.264, MPEG-2 to MPEG-2, MPEG-2 to H.264
Transcode Channels	8 channels SD/HD transcoding
Input	MPTS/SPTS, MPEG2 MP@ML MP@HL, MPTS/SPTS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not FMO, ASO & RS of Baseline)
Output	MPTS and/or un-stuffed TS, MPEG2 MP@ML MPTS and/or un-stuffed TS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not include FMO, ASO & RS of Baseline)



P01AT

4 x H.265/AVS+/MPEG-2/H.264 HD/SD Transcoder Module

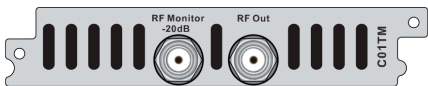
Transcoding mode	H.265 HD/SD to H.264, H.265 HD/SD to MPEG-2 SD H.264 to MPEG-2 SD, H.264 to H.264, MPEG-2 to MPEG-2 SD, MPEG-2 to H.264	Video Resolution & Recommend 480i (720 x 480) @29.97Hz SMPTE656M: 3M~10Mb/s 576i (720 x 576) @25Hz SMPTE656M: 3M~10Mb/s
Input	Compliant with H.265 (HEVC), H.264/AVC Baseline, Main & High Profile @ L4.0 or less & MPEG-2 MP@ML, AVS+	Aspect Ratio 16:9, 4:3 selectable
Coding standard	MPEG-1 Layer II, MPEG-2/4, AAC-LC/HEAAC, support Dolby AC3 Passthrough	Output MPTS and/or un-stuffed TS, MPEG2 MP@ML MPTS and/or un-stuffed TS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not include FMO, ASO & RS of Baseline)
Video Resolution & Recommend Compression Bit Rate H.264	1080i (1920 x 1080) @25Hz, 29.97Hz SMPTE274M: 1~13Mb/s. 1080i (1440 x 1080) @25Hz, 29.97Hz SMPTE274M: 5~24Mb/s 720p (1280 x 720) @50Hz, 59.94Hz, SMPTE296M: 1~13Mb/s 480i (720 x 480) @29.97Hz SMPTE656M: 600K~10Mb/s 576i (720 x 576) @25Hz: SMPTE656M: 600K~10Mb/s	



D01PA

2 x Channels Multi-format Signal HDMI Decoder Module

Interface	2 x HDMI 1.3, 1 x D-sub 15 Female (2 pairs CVBS out adapter)	Field Time Distortion <2%
Video Decode	MPEG-2 (MP@ ML for SD, MP@HL for HD) MPEG 4/H.264 AVC Part 10 (MP@L3 for SD, HP@L4.1 for HD)	Line Time Distortion <1%
Video Resolution	1080i x 30, 1080i x 29.97, 1080i x 25, 720p x 60, 720p x 59.94, 720p x 50, 576i x 25, 480i x 29.97	Short Time Distortion <2%
Video Bit Rate	< 50Mb/s	Differential Gain <3%
Aspect Ratio	16:9, 4:3 selectable	Differential Phase <2°
Audio Format	MPEG Layer1/ 2 AAC-LC, HE-AAC v1/v2	S/N >55dB
Analog Video Output	CVBS, 2 x RCA, (DB15 adapter)	Analog Audio Output 4 x RCA, 2 x Group L+R, (DB15 adapter)
CVBS Standard	NTSC, PAL, SECAM	Output Impedance 600Ω (Balanced)
CVBS Resolution	576i x 25, 480i x 29.97	Output Mode Left, Right, Mono, Stereo
Output Level	1.0 Vp-p ± 5% (with standard test stream)	Audio Decoding 2 pairs Stereo (2 groups of audios PID or 4 sound channels)
Frequency Response	<±1 dB, 5.5 MHz (PAL, SECAM), 4.2MHz (NTSC)	Cross Talk >70dB
Chroma-Luma Delay	<±30 ns	THD <0.3% @400Hz, 1KHz test done
		Frequency Response ±0.5dB (20Hz ~ 18KHz)
		Output Level -30~+7dB (Adjustable, 0dBm/600Ω)
		Subtitle DVB, EBU
		VBI Teletext, WSS
		Closed Caption EIA 608, EIA 708



C01TM

4 x COFDM Modulator Module

Interface	2 x F type Female, 75Ω (1 x main output, 1 x -20dB monitor output)	MER > 36dB
Modulation	4 x un-adjacent channel carries COFDM	BER < 10E-5
RF output range	100~862MHz, step by 10KHz	Constellation QPSK, 16QAM, 64QAM
RF total output level	84~114dBuV	Bandwidth 5/6/7/8MHz
Spurious rejection	> 53dB	FFT Mode 2K/4K/8K
Return loss	-10dB	Guard Interval 1/4, 1/8, 1/16, 1/32
		Code Rate 1/2, 2/3, 3/4, 5/6, 7/8

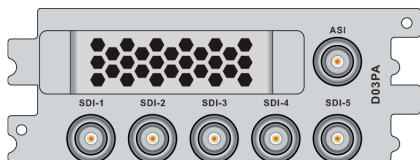


D02PA

2 x Channels Multi-format Signal SD/HD SDI Decoder Module

Interface	2 x SDI outputs, 1xGenlock input, BNC Female 75Ω, 2 x CVBS outputs by D-sub 15 to RCA convertor
Video Decode	MPEG-2 (MP@ ML for SD, MP@HL for HD) MPEG 4/H.264 AVC Part 10 (MP@L3 for SD, HP@L4.1 for HD)
Video Resolution	1080i x 30, 1080i x 29.97, 1080i x 25, 720p x 60, 720p x 59.94, 720p x 50, 576i x 25, 480i x 29.97
Video Bit Rate	< 50Mb/s
SD SDI standard	SMPTE259M, 270Mb/s (10bit)
HD SDI standard	SMPTE292M, 1.485Gb/s (10bit)
SDI Embedded Audio	Support 8x PID or pass through
Sampling Rate	32KHz, 44.1KHz, 48KHz
Audio Format	MPEG Layer 1/2 Dolby Digital (AC3) Dolby Digital Plus (AC3+) AAC-LC, HE-AAC v1/v2
Analog Video Output	CVBS, 2 x RCA, (DB15 adapter)
CVBS Standard	NTSC, PAL, SECAM
CVBS Resolution	576i x 25, 480i x 29.97
Output Level	1.0 Vp-p ± 5% (with standard test stream)

Frequency Response	< ± 1 dB, 5.5 MHz (PAL, SECAM), 4.2MHz (NTSC)
Chroma-Luma Delay	< ±30ns
Field Time Distortion	<2%
Line Time Distortion	<1%
Short Time Distortion	<2%
Differential Gain	<3%
Differential Phase	<2°
S/N	>55dB
Analog Audio Output	4 x RCA, 2 x Group L+R, (DB15 adapter)
Output Impedance	600Ω (Balanced)
Output Mode	Left, Right, Mono, Stereo
Audio Decoding	2 pairs Stereo (2 groups of audios PID or 4 sound channels)
Cross Talk	>70dB
THD	<0.3% @400Hz, 1KHz test done
Frequency Response	±0.5dB (20Hz ~ 18KHz)
Output Level	-30 ~ +7dB (Adjustable, OdBm/600Ω)
Subtitle	DVB, EBU
VBI	Teletext, WSS
Closed Caption	EIA 608, EIA 708
Genlock	Support

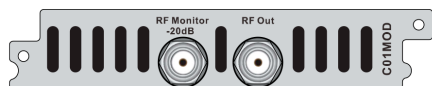


D03PA

4K H.265 Decoder Module

SDI	BNC Female *5, 75Ω
Video Decode	MPEG-2(MP@ ML for SD, MP@HL for HD) MPEG 4/H.264 AVC Part 10 (MP@L3 for SD, HP@L4.1 for HD) H.265/HEVC Main/Main10 profile@Level5.1 High-tier: up to 4Kx2K@60fps H.264/AVC BP/MP/HP@ level 5.1 H.264/AVC MVC, up to 4Kx2K@30fps MPEG-1 up to 4Kx2K@60fps MPEG-2 SP@ML, MP@HL, up to 1080p@60fps MPEG-4 SP@LO-3, ASP@LO-5, support GMC, up to 1080p@60fps
Video Resolution	1080i x 30, 1080i x 29.97, 1080i x 25, 2160p60, 2160p50, 1080p60, 1080p59.94, 1080p30, 1080p29.97, 1080p25, 1080i x 30, 1080i x 29.97, 1080i x 25, 720p x 60, 720p x 59.94, 720p x 50
Video Bit Rate	<80Mb/s
HD-SDI standard	SMPTE 2082M, SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 425M

SDI Embedded Audio	Support 16x PID or pass through
Sampling Rate	48KHz
Audio Format	MPEG Layer1/2 Dolby Digital (AC3) AAC-LC, HE-AAC v1/v2
Output Mode	Left, Right, Mono, Stereo
Audio Decoding	2 pairs Stereo (2 groups of audios PID or 4 sound channels)
Cross Talk	>70dB
THD	<0.3% (test done: 400Hz, 1KHz)
Frequency Response	±0.5dB (20Hz~18KHz)
Output Level	-30 ~ +7B (Adjustable, OdBm/600Ω)
Subtitle	DVB, EBU
VBI	Teletext, WSS
Closed caption	EIA 608, EIA 708
ASI IN/OUT	1
Standard	DVB-ASI, EN50083-9
Input and Output Bit Rate	≤ 200Mbis

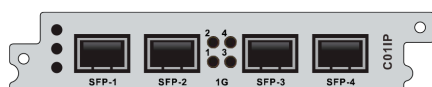


C01MOD

8 x QAM/2 x COFDM Modulator Module

Interface	2 x F type Female, 75Ω (1 x main output, 1 x -20dB monitor output)
Modulation	QAM/COFDM Mode
RF Output	2 x 4 adjacent channel carriers QAM 2 x un-adjacent channel carries COFDM
RF output range	48~1000MHz, step by 1KHz
Symbol rate	2.5~6.99MBauds
RF total output level	88~118dBuV (108dBuV each carrier)
Spurious rejection	> 55dB
Return loss	-10dB

QAM Modulation	ITU-T J.83 Annex A, C
Constellation	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
MER	> 38dB
BER	< 10E-9
COFDM Modulation	QPSK, 16QAM, 64QAM
Bandwidth	5/6/7/8MHz
FFT Mode	2K/8K
Guard Interval	1/4, 1/8, 1/16, 1/32
Code Rate	1/2, 2/3, 3/4, 5/6, 7/8



C01IP

4 x SFP TS over IP I/O Module

Interface	4 x SFP, 1000 Base-T
Standard	IEEE 802.3, 1000 Base-T, Full Duplex
Maximum bit rate	920Mbps per port
Data Format	UDP/RTP, SPTS/MPTS

Control Protocol	ICMP, ARP, IGMP v2/v3
Maximum number of services	4x 64 TS in; 4x 64 TS out
Operational mode	independent or 1+1 redundancy



O7 Technologies Pty Ltd trading as Omniscreen

www.omniscreen.com.au
Tel: 1300 46 47 88

Unit 12, 347 Bay Road,
Cheltenham, VIC 3192, AUSTRALIA.

