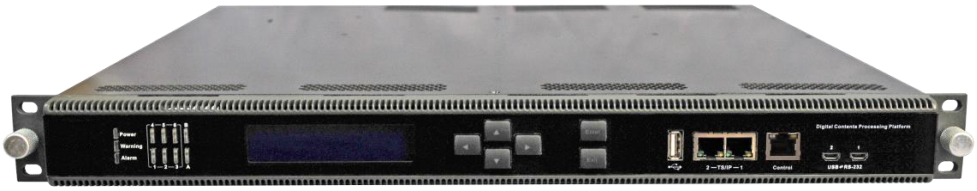
# WCP-3000

Digital Content Processing Platform



WCP-3000 series bring compact, powerful, and flexible solutions that allow the users to build or update the CATV or DTV or IPTV headend to meet a variety of requirements of today's new network architecture. WCP-3000Pro is a 1U platform which is capable of transforming into any type of digital headend with six independent I/O modules and two extended modules. Each module can be configured individually to the encoder, demodulator, descrambler, or modulator. This full function device makes it ideal for small CATV or DTV or IPTV headend system, and it's a smart choice for hotel TV system, entertainment system in sports bar, hospital, apartment and so on.

## Main Feature

- A variety of functional modules to build flexible headend combinations
- 6 Input modules and 2 modulating modules (factory option)
- H.265/H.264 Video encoding MPEG-1 Layer2（MPEG2-AAC）Audio encoding
- DVB-T / DVB-C / DTMB RF output
- Supports variety of input options DVB-S2/S/S2X/C/T/T2 demodulator and support 2-way CI descrambling
- WebRTC to UDP, SRT to UDP converting
- Video encoding with VBR/CBR
- Redundant power supplies
- PSI/SI editing and PID remapping
- MPTS/SPTS outputs over UDP/RTP
- Http management

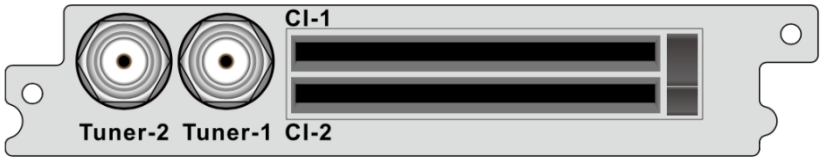
# Specification

| | | WCP-3000Lite | WCP-3000Pro |
|---|---|---|---|
| | | | |
| TS Processing | Standard | IEEE 802.3, 1000 Base-T | IEEE 802.3, 1000 Base-T, Full Duplex |
| | Maximum bitrate | 800Mb/s | 800Mb/s |
| | Data | UDP，SPTS/MPTS | UDP/RTP，SPTS/MPTS x 32 |
| | Control | ICMP, ARP, IGMP V2 | ICMP, ARP, IGMP V2，IGMP V3 |
| | Remux | N/A | 4 x TS |
| | PSI/SI Editing | N/A | Generate, NIT，LCN Insert |
| Front Panel | TS/IP | 2 × RJ45(GbE), 1000 Base-T | 2 × RJ45(GbE), 1000 Base-T |
| | Control | RJ45, 10/100 Base-T | RJ45, 10/100/1000 Base-T |
| | USB | Upgrade firmware | USB (upgrade), Mini USB (Debug) |
| | Display | 11 x LED | 11 x LED |
| | Keypad | N/A | Yes |
| Rear Panel | Slots | 6 (hot-swap) | 6 (Factory option) |
| | RF | N/A | Femal, 75Ω (Factory option) |
| Physical | Power supply | AC220V± 10%，50/60Hz | AC220V± 10%，50/60Hz |
| | Operating temperature | 0 ~ 45℃ | 0 ~ 45℃ |
| | Storage temperature | -10 ~ 60℃ | -10 ~ 60℃ |
| | Operating Humidity | 10 ~ 90%, | 10 ~ 90%, |
| | Dimension | 483 x405 x44mm | 487 x445 x44mm |
| Modulation module | DVB-C | N/A | Yes |
| | DVB-T | N/A | Yes |
| | DTMB | N/A | Yes |

# Module options

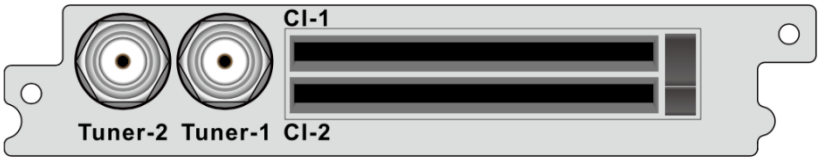
| Type | Model | | Description |
|---|---|---|---|
| Reciever | WCP-3000DS2 | | 2-Way DVB-S/S2/S2X receiver with 2 CI slots |
| | WCP-3000DT2 | | 2-Way DVB-T/T2/C receiver with 2 CI slots |
| Encoder | WCP-3000EH4 | | 4-Way HDMI H.264/H.265 Encoding |
| | WCP-3000EV8 | | 8-Way CVBS H.264 Encoding |
| IP Coverter | WCP-3000PC | | UDP, SRT, WebRTC converter |
| Modulator | WCP-3000TM2 | | 2-Way DVB-T Modulating |
| | WCP-3000DM4 | | 4-Way DTMB Modulating |
| | WCP-3000CM4 | | 4-Way DVB-C Modulating |

# WCP-3000DS2 2-Channel DVB-S/S2/S2X Demodulator



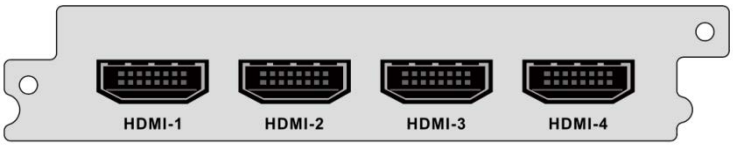

| | |
|---|---|
| **Tuner** | |
| RF Input | DVB-S/S2/S2X |
| Type | F x 2, 75Ω |
| Input Frequency | 950 ~ 2150MHz |
| Input Level | -65 dBm ~ -25dBm |
| Symbol Rate | DVB-S2X/S2 QPSK 8PSK: 1 ~ 60 MSps |
| | 16APSK: 1 ~ 58 MSps |
| | 32APSK: 1 ~ 55 MSps |
| | 64APSK: 1 ~ 34 MSps |
| | DVB-S QPSK: 1~54 MSps |
| Roll Off Factor | DVB-S QPSK: 0.35 |
| | DVB-S2 8PSK: 0.35, 0.25, 0.2 |
| | DVB-S2X: 0.35, 0.25, 0.2, 0.15, 0.1, 0.05 |
| FEC Puncture Rate | DVB-S QPSK: 1/2, 2/3, 3/4, 5/6, 7/8 |
| | DVB-S2X/S2: (64800 bits) FECFRAME |
| LNB Polarity Voltage | 0, 13V, 18V |
| LNB Band Selection | 0/22KHz |
| DiSEqC | DiSEqC 2.0 |
| PLS | 0 ~ 262141 |
| ISI | 1 ~ 255 |
| **TS Processing** | |
| TS Input | Tuner1, Tuner2 |
| TS Output | TS over IP |
| Common Interface | PCMCIA, DVB-CI x 2 |
| CI Monitor | Yes |

# WCP-3000DT2 2-Channel DVB-T/T2/C Demodulator




| | |
|---|---|
| **DVB-T2/T** | |
| Input | DVB-T/T2 |
| Type | F x 2, 75Ω |
| Standard | DVB-T2 v1.3.1 |
| Input Frequency | 42 ~ 1002 MHz |
| Input Level | -60dBm ~ -20dBm |
| Symbol Rate | 1.8 ~ 7.2MSps |
| Constellation | DVB-T: QPSK, 16QAM, 64QAM |
| | DVB-T2: QPSK, 16QAM, 64QAM, 256QAM |
| Bandwidth | 6MHz, 7MHz, 8MHz |
| FFT Mode | DVB-T: 2k, 8k |
| | DVB-T2: 1k, 2k, 4k, 8k, e8k, 16k, e16k, 32k, e32k |
| FEC Code Rate | DVB-T: 1/2, 2/3, 3/4, 5/6, 7/8 |
| | DVB-T2: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6 |
| Guarding Interval | DVB-T: 1/32, 1/16, 1/8, 1/4 |
| | DVB-T2: 1/128, 1/32, 1/16, 19/256, 1/8, 19/128, 1/4 |
| Input Return Loss | 7dB (typ.) |
| **DVB-C** | |
| Type | F x 2, 75Ω |
| Input Frequency | 42 ~ 1002 MHz |
| Input Level | -60dBm ~ -20dBm |
| Symbol Rate | 1.8 ~ 7.2MSps |
| Constellation | 16QAM, 32QAM, 64QAM, 128QAM, 256QAM |
| Bandwidth | 6MHz, 7MHz, 8MHz |
| Input Return Loss | 7dB |
| **TS Processing** | |
| TS Input | Tuner1, Tuner2 |
| TS Output | TS over IP |
| Common Interface | PCMCIA, DVB-CI x 2 |
| CI Monitor | Yes |

# WCP-3000EH4  4-Channel HD/SD H.265/H.264 Encoder

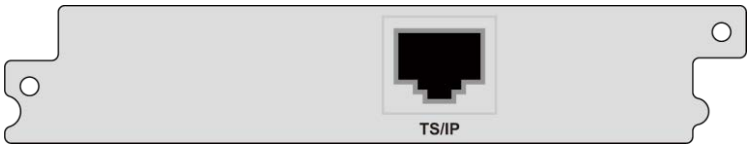



| **Video Compression** | |
|---|---|
| Input | HDMI x 4 |
| Compression Standard | H.265 MP, H.264 BP&MP(Default) |
| Sampling Format | YCbCr 4:2:0 |
| Video Resolution & Recommend Compression Bit Rate ( H.265 ) | 1080P ( 1920×1080 ) @50Hz,60Hz<br>SMPTE274M:3~7Mb/s<br>1080I(1920×1080)@25Hz,29.97Hz<br>SMPTE274:3~7Mb/s<br>720P(1280×720)@50Hz,59.94Hz<br>SMPTE296M: 3~7Mb/s<br>720P(1280×720)@25Hz,29.97Hz<br>SMPTE296M: 3~7Mb/s |
| Video Resolution & Recommend Compression Bit Rate ( H.264 ) | 1080P ( 1920×1080 ) @50Hz,60Hz<br>SMPTE274M:4~8Mb/s<br>1080I(1920×1080)@25Hz,29.97Hz<br>SMPTE274:4~8Mb/s<br>720P(1280×720)@50Hz,59.94Hz<br>SMPTE296M: 4~8Mb/s<br>720P(1280×720)@25Hz,29.97Hz<br>SMPTE296M: 4~8Mb/s |
| **Audio Compression** | |
| Connect Type | Embeded |
| Coding Standard | MPEG1 Layer II<br>MPEG-2/AAC/HE-AAC(V1,V2) |
| Sampling Rate | Pass through |
| Recommend Compression Bit Rate | MPEG-2/4 AAC-LC: 32Kbps /48 Kbps /64 Kbps /128 Kbps /192 Kbps<br>MPEG2/4 HE-AAC(V1,V2): 32 Kbps /48 Kbps /64 Kbps /128 Kbps /192 Kbps |

# WCP-3000EV8  8-Channel SD H.264 Encoder

| Video Compression | |
|---|---|
| Input | CVBS x 8 |
| Coding Standard | H.264 BP&MP (Default) |
| Sampling Rate | YCbCr 4:2:0 |
| Video Resolution & Recommend Compression Bit Rate (H.264) | 480I(720×480)@29.97Hz<br>SMPTE656M:3~8Mb/s<br>576I(720×576)@25Hz<br>SMPTE656M: 3~8Mb/s |
| **Audio Compression** | |
| Connect Type | Analog |
| Coding Standard | MPEG1 Layer II<br>MPEG-2/AAC/HE-AAC(V1,V2) |
| Sampling Rate | 11.25KHz , 12KHz , 16KHz , 22KHz , 24KHz , 32KHz , 44.1KHz , 48KHz |
| Recommend Compression Bit Rate | MPEG-2/4 AAC-LC: 32 Kbps/48Kbps/64Kbps/128Kbps/192Kbps<br>MPEG2/4 HE-AAC(V1,V2): 32Kbps/48Kbps/64Kbps/128Kbps/192Kbps |

# WCP-3000PC  IP Converter




| | |
|---|---|
| Type | RJ45 10/100Base-T |
| Data Protocol | UDP, SRT, WebRTC |
| Max. Effective Bit Rate | 70Mb/s |
| SRT | Caller, Listener, Rendezvous |
| Multicast Protocol | UDP, Multicast, IGMPv2 |

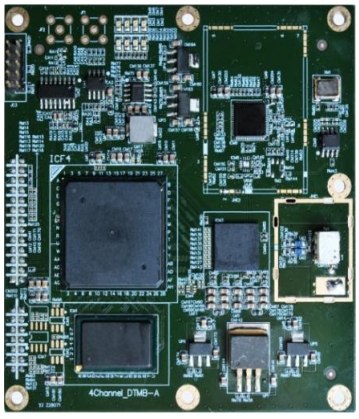
**WCP-3000TM2** *2-Chaneel DVB-T Modulator*

| | |
|---|---|
| Standard | DVB-T COFDM |
| RF output range | 100~862MHz, step by 250kHz |
| Modulation Mode | QPSK/16QAM/64QAM |
| Bandwidth | 6/7/8MHz |
| FFT Mode | 2K/4K/8K |
| Guard Interval | 1/4,1/8,1/16,1/32 |
| Code Rate | 1/2,2/3,3/4,5/6,7/8 |
| MER | ≥38dB |
| Spurious rejection | 50dB（typ.） |
| Standard | DVB-T COFDM |

**WCP-3000CM4** *4-Channel DVB-C Modulator*

| | |
|---|---|
| Standard | J.83 Annex A; J.83 Annex C（Future evolution） |
| RF output range | 48~996MHz, step by 1KHz |
| Modulation Mode | 16QAM,32QAM,64QAM,128QAM,256QAM |
| Symbol Rate | 2.5~6.99MS/s |
| BER | ≤0E-9 |
| MER | 40dB typ.，（enable equalization） |
| Spurious rejection | 55dB（typ.） |
| Standard | J.83 Annex A;J.83 Annex C（Future evolution） |

**WCP-3000DM4** 4-Channel *DTMB Modulator*



| | |
|---|---|
| Standard | DTMB GB20600-2006 |
| RF output range | 48~996MHz, step by 1KHz |
| Bandwidth | 8MHz |
| Carrier Mode | Single |
| Modulation Mode | 4QAM/16QAM/64QAM |
| Guard Interval | 1/6 |
| Time Inter-leaver Depth | 240 |
| MER | 30dB typ.，（enable equalization） |
| Spurious rejection | 55dB（typ.） |
| Standard | DTMB GB20600-2006 |

## Typical Usage:

| | Model | Module | Output | Description |
|---|---|---|---|---|
| Demodulation | WCP-3000Pro-6S | 3*DS2 | IP | 6 Channels DVB-S/S2/S2X to IP Gateway |
| | WCP-3000Pro-8T | 4*DT2 | IP | 8 Channels DVB-T2/T to IP Gateway |
| Encoding | WCP-3000Pro-24H | 6*EH4 | IP | 24 Channels HDMI Encoder |
| | WCP-3000Pro-32V | 4*EV8 | IP | 32 Channels CVBS Encoder |
| Transmoduation | WCP-3000Pro-4S2T | 2*DS2 | 1*TM2+IP | 4-to-2 DVB-S to DVB-T Modulator |
| | WCP-3000Pro-6S4T | 3*DS2 | 2*TM2+IP | 6-to-4 DVB-S to DVB-T Modulator |
| | WCP-3000Pro-8C4D | 4*DC2 | 1*DM4+IP | 8-to-4 DVB-C to DTMB Modulator |
| | WCP-3000Pro-8T4C | 4*DT2 | 1*CM4+IP | 8-to-4 DVB-T to DVB-C Modulator |
| Encoding & Modulation | WCP-3000Pro-8H2T | 2*EH4 | 1*TM2+IP | 8-to-2 HDMI Encoder to DVB-T Modulator |
| | WCP-3000Pro-16H4T | 4*EH4 | 2*TM2+IP | 16-to-4 HDMI Encoder to DVB-T Modulator |
| | WCP-3000Pro-24V4T | 3*EV8 | 2*TM2+IP | 24-to-4 CVBS Encoder to DVB-T Modulator |