

**Verona™ 4 Tuner T+T2/HD-SDI+IP+ASI**  
**Broadcast Quality, Frequency Agile, 1 RU, Modular, 1-4**  
**Tuner DVB-T and DVB-T2 Receiver or Demodulator and**  
**Decoder with 4 Each On Board HD or SD MPEG-2 or**  
**H.264 TS Decoders with DVB-T, DVB-T2, IP Unicast or**  
**Multicast (FEC), or ASI In and SDI, HD-SDI, ASI, or IP**  
**Out. Dolby AC-3 and MPEG Audio Decoder with BNC**  
**Connectors. Ideal Receiver for Comprehensive Off Air**  
**Monitoring of Multiple On Airs via RF or IP for Master**  
**Control or ENG Trucks. Features Many On Screen**  
**Diagnostics Displayed as Overlay. Supports AES-3 id**  
**Audio as well as MPEG-1/2, PCM, and AC-3. Supports**  
**BISS and Other CA. SNMP Management.**



## Features

- Receiver/Decoder with up to 4 DVB-T+T2 tuner/decoder modules
- Supports Pro-MPEG FEC on IP input
- Inputs: Up to 4 channels of DVB-T+T2, IP, and DVB-ASI
- Each tuner/decoder module may have up to three BNC connectors which can be DVB-ASI input, IP input, DVB-ASI output, or AES-3 PCM or compressed audio output
- Outputs: Up to four mirrored HD-SDI/SDI outputs (one per module), plus ASI, HDMI, SMPTE-310M, and/or MPEG over IP
- SCTE 104/SCTE 35 output
- New preview screen displays decoded output
- Gigabit Ethernet media port on each module supports four IP outputs and one IP input
- Audio outputs: MPEG, PCM, or AC-3
- Supports "Stream All" for all RF to IP
- May choose or automate choice of digital stream from DVB-T or DVB-T2 or DVB-ASI or SMPTE-310M or IP signal. Auto switching with sync loss.
- H.264 (MPEG-4) or MPEG-2 MP@HL compliant video decoder supplies digital video signal
- Digital video signal compliant with SMPTE-259M or SMPTE-292M (SDI) with embedded 8 channel audio (SMPTE-299M) or embedded compressed audio
- Dolby Digital® AC-3 and HE-AAC and MPEG-1/2 5.1 channel audio decoder, MPEG-2 AAC-LC (13818-7), MPEG-4 HE-AACv1 (14496-3.2003) support, MPEG-4 HE-AACv2 (14496-3.2004) not available
- Dolby Digital® AC-3 or PCM stereo audio selectable over BNC connector
- SDI video signal with 1080i/720p/576p/576i (480i) video mode along with SCTE 35/104
- Supports subtitles
- Down converts HD input to SD out if requested
- PID filtering
- SNMP management support (GigE)
- 2 lines by 40 characters LCD display
- Dual power supply option available

## Overview

DVB-T (Digital Video Broadcasting – Terrestrial) is the European standard for broadcasting digital TV “over the air” in Europe and many other areas of the world. DVB-T2 is the second generation version of the DVB-T standard. DVB-T2 offers 30 to 50 percent higher transmission capacity than DVB-T, plus improved forward error correction.

The Verona™ 4 Tuner T+T2/HD-SDI+IP is a modular four channel professional broadcast digital TV demodulator/decoder. It has five slots. Each slot can have an AC to DC power supply module or a tuner/decoder module. The typical application uses one AC to DC power supply and up to four tuner/decoder modules.

Each tuner/decoder module can have an RF tuner with DVB-ASI input and MPEG over IP input. MPEG stream output is available through DVB-ASI and MPEG over IP. IP outputs can have up to five transport streams. A useful feature is its ability to automatically switch between RF and IP inputs.

Designed to support all broadcast industry standard forms of the DVB standard, it supports 576i/480i, 576p/480p, 720p and 1080i decoding. Video output is in SDI/HD-SDI digital format with embedded audio. Audio output is available through embedded audio and AES-3 BNC connectors. The compressed audio on the BNC has a Dolby AC-3 with 5.1 channels.

## Applications

- Multichannel off air terrestrial receiver
- Multichannel MPEG-2/4/H.264 HD Decoder
- Content repurposing
- RF to IP with RFC 3022 out
- Multichannel IP decoder
- Reduce CAPEX and OPEX with density



**Computer Modules, Inc.**

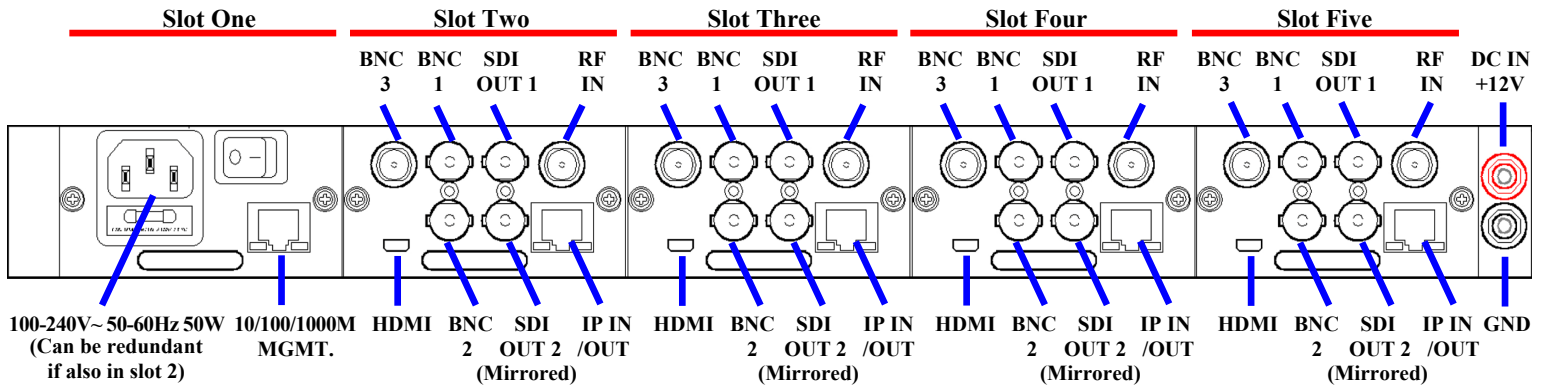
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## Rear View



## Specifications

<b>Front Display/Keys</b>	<ul style="list-style-type: none"> <li>2 lines by 40 characters LCD</li> <li>11 keys for Easy Control</li> <li>ENTER, EXIT, ARROW, and Slot Selection Keys</li> </ul>
<b>Slots</b>	Five slots for power supply module and four demodulator/decoder modules
<b>DVB-T or DVB-T2 RF Input</b>	
Channel:	6/7/8 MHz RF Selectable
Connector:	2 x 75 Ohm BNC-type Connector (8VSB/QAM or DVB-S+S2 options available)
Symbol Rate:	DVB-T: 10 ~ 30 Msps
Frequency Range:	470-862 MHz
Note:	Supports T2MI multiplexed streams. Supports DVB-T2 version 1.3.1.
<b>TS Input</b>	
Formats:	IP (with FEC), DVB-ASI, SCTE-035
Connectors:	75 ohm BNC, RJ-45
<b>Redundancy</b>	ASI or RF input with auto failover
<b>Display</b>	Video and TS parameters displayed via "on screen" mode (see manual)
<b>Audio Output</b>	
Signal:	AES3-id (Select ASI or AES3-id output at front panel)
Connectors:	75 Ohm BNC – one audio output per module
Format:	Dolby AC-3 audio with 5.1, AAC, MPEG 1/2, PCM
1st Audio Output (one per module):	Connector: 75 Ohm BNC
Audio Pairs Decoded:	Standard – Select any one of four stereo pairs Optional – audio decoder board for selecting one additional stereo pair, for a total of 2 of 4 stereo pairs
<b>Audio Levels</b>	Set to +4dBm for -20dBFS digital audio contents when the audio attenuation menu is set to zero. The audio level can be attenuated using the front panel audio configuration menu.

<b>Digital Audio Output</b>	Choose either PCM mode or COMPRESSED audio output mode for MAIN channel. The chosen audio mode is used for all BNC output ports. You can have PCM mode only for the SUB channel.  You may have COMPRESSED audio out of MAIN channel over BNC port and PCM audio out of SUB channel over BNC port.  Output supports 2 channels, not 5.1
<b>Audio Decoding Standard</b>	ISO/IEC 14496-3:2009 (MPEG-4 HE AACv2)
<b>TS Output</b>	
Format:	SMPTE 310M, DVB-ASI, or IP
Connectors:	75 ohm BNC, RJ-45
Decoding Standard:	ISO/IEC 14496-10:2012 (MPEG-4 AVC/H.264)
<b>Digital Video Output (SDI, HD-SDI)</b>	SMPTE259M/SMPTE292M with embedded audio (SMPTE-299M) with SCTE 104/35
<b>Ethernet Input/Output</b>	10/100/1000 Mbps MPEG over RTP/UDP FEC supported (Pro MPEG) (IP In)
<b>Management Ethernet</b>	10/100/1000 Mbps SNMP, Web-browser manager
<b>Conditional Access</b>	BISS-1/E and DVB-CI
<b>Network Management</b>	NMS supported through SNMP
<b>CPU and RAM</b>	MIPS 300 MHz 32 bit RISC
<b>Unit</b>	1 RU 19-inch rackmountable
<b>Operating Temperature</b>	+0 ~ +45°C (32 to 113°F)
<b>Storage Temperature</b>	-20 ~ +50°C (-4 to 122°F)
<b>Operating Humidity</b>	10 to 90%, Non-condensing
<b>Power Supply Module</b>	AC 100-240V~ 50-60Hz 120W max DC 12V 8A max output
<b>Dimensions</b>	HxWxL: 1.7 x 19 x 16.9 inches (4.3 x 48.26 x 42.93 cm)
<b>Weight</b>	14.1 lbs. (6.396 kg.)
<b>Conformities</b>	 FCC, RoHS CE Mark: Electromagnetic Compatibility Directive 2004/108/EC Low Voltage Directive 2006/95/EC

## Ordering Info

Verona 4 Tuner T+T2/HD-SDI+IP/PS – replace one or more Tuner modules with an additional power supply

Also available:

Verona 4 Tuner 8VSB/HD-SDI+IP

Verona 4 Tuner QAM/HD-SDI+IP

Verona 4 Tuner S+S2/HD-SDI+IP

Verona-MF – Multiformat: T+T2, S+S2, and/or 8VSB/QAM