

## DVB-T2/T Aircraft Transmitter

The HDT-04 is the new high power transmitter developed by SVP Broadcast Microwave which is an excellent, reliable and comfortable solution for a wide variety of applications. The features of this equipment, achievable only by SVP, make this transmitter the most advanced that exist in the market today.

This device performs DVB-T, DVB-T2, ISDB-T, DVB-S and DVB-S2 modulations and H.264 - 4:2:2 encoding for HD and SD signals. It has an L Band output which enables the use of the transmitter as a satellite encoder and modulator unit. Moreover, it provides an output power of 10 W in the frequency range of 2.01 to 2.39 MHz or 2.3 to 2.7 MHz and 5 W in 3, 4 and 5 GHz frequency ranges.

This new generation transmitter accepts analogue video, 3G/HD/SD-SDI and HDMI video input signals. Analogue, SDI embedded, HDMI embedded and AES/EBU audio inputs are available as standard. User data or GPS data can be transmitted over the data channel.

The ASI output enables to use the transmitter as a standalone encoder or as a complete satellite encoder/modulator for SNG applications.

Thanks to these features, it expands the possibilities of COFDM digital links in the market by using linearization technology to minimize distortion and providing superior signal quality for complex multicarrier modulations.

Control, operation and monitoring of the HDT-04 transmitter are very friendly. All the parameters of the transmitter can be configured in the field. A wide range of accessories allows the use of this equipment in many different applications.

For applications of high security, the HDT-04 transmitter has the option of



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**DVB-T2**

### FEATURES

- Frequency bands: 2, 3, 4 and 5 GHz
- Output power: 10W (2 GHz) or 5W (3,4,5 GHz)
- Highest video quality available: 1080p/50, 1080p/60, 3G-SDI
- Lowest Delay in H.264: 33 ms
- Power supply range: 12 – 36 VDC
- Terrestrial and satellite transmission
- BISS-1, BISS-E Encryption
- Ultra high linearity
- Isolator for protection against high VSWR
- RTCA/DO-160 compliant
- ARINC 400 compatible
- H.264 4:2:2

### OPTIONS

- AES-128 and AES-256 Encryption
- DVB-S/S2 modulator
- Remux
- ISDB-T with interlaced
- KLV Metadata

### APPLICATIONS

- Aircraft Downlink System
- News Gathering Vans
- Satellite News Gathering
- Motorbikes
- Ships



### ACCESSORIES



RTC-01 Remote Control



GPS-02 Antenna



AVS Airborne Antenna

## Characteristics

### RF Stage DVB-T2 and DVB-T

|                          |  |
|--------------------------|--|
| Frequency band:          | 2.01 to 2.39 GHz or 2.3 to 2.7 GHz<br>3.3 to 3.6 GHz<br>4.4 to 5.0 GHz<br>5.0 to 5.3 GHz |
| Max. Output Power:       | 10 W (in 2 GHz)<br>5 W (in 3, 4 and 5 GHz)   |
| Harmonic suppression:    | 60 dB  |
| Protection capabilities: | Reverse DC, High RF Reverse  |

### IF Stage (L Band) DVB-S2 and DVB-S (optional)

|                        |                                    |
|------------------------|------------------------------------|
| Frequency band:        | L band                             |
| Output Power Level:    | -50 to +5 dBm                      |
| 10 MHz Ref. Oscillator | High stability and low phase noise |

### IF Stage (70 MHz)

|               |  |
|---------------|--|
| Output:       | 70 MHz (DVB-T2, DVB-T, DVB-S2 and DVB-S) |
| Output Level: | -10 dBm (DVB-S/S2)<br>-14 dBm (DVB-T/T2) |

### Video

|          |   |
|----------|---|
| Inputs:  | 3G-SDI SMPTE-425M-A (299M)<br>HD-SDI SMPTE-292M (299M)<br>SD-SDI SMPTE-259M (272M)<br>HDMI (1.4a)<br>Composite video (PAL/NTSC)   |
| Formats: | <b>1080p</b> (1920 x 1080) - 23,98/24/25/<br>29,97/30/50/59,94/60 Hz<br><b>1080i</b> (1920x1080) - 50/59,94/60Hz<br><b>720p</b> (1280x720) - 23,98/24/25/29,97/<br>30/50/59,94/60 Hz<br><b>576i</b> (720x576) - 50 Hz<br><b>480i</b> (720x480) - 59,94 Hz |

### Audio

|               |  |
|---------------|--|
| Input :       | SDI embedded / HDMI embedded<br>AES Digital / Analogue         |
| Analogue:     | 2 Stereo / 4 Mono<br>Line, Micro Dynamic or Micro with Phantom |
| SDI embedded: | 1 group (4 audio channels)                                     |
| AES/EBU:      | 2 stereo channels  |

### Data Channels

|               |                       |
|---------------|-----------------------|
| Data channel: | User data or GPS data |
| Data rate:    | 1.200 to 57.600 bps   |

### ASI

|                   |                                  |
|-------------------|----------------------------------|
| Input and Output: | ASI Transport Stream (EN50083-9) |
|-------------------|----------------------------------|

### Test Signals

|        |                       |
|--------|-----------------------|
| Video: | Bars with moving icon |
| Audio: | 4 audio tones         |

### Encoder

|                    |                             |
|--------------------|-----------------------------|
| Video compression: | H.264/ MPEG-4 Part 10       |
| Profile:           | High 422, High, Main        |
| Level:             | 3.0 / 3.1 / 3.2 / 4.0 / 4.1 |
| Latency:           | Low delay: 33 ms            |
| Audio compression: | MPEG-1 Layer II             |
| Audio bit rate:    | 128, 192, 256 or 384 Kbps   |
| Output bitrate:    | 1 Mbps - 100 Mbps           |

### Encryption

|       |                                |
|-------|--------------------------------|
| BISS: | BISS-1, BISS-E                 |
| AES:  | AES-128 and AES-256 (optional) |



### Modulation

|                    |  |
|--------------------|--|
| DVB-T2:            | COFDM 1K, 2K<br>QPSK, 16QAM, 64QAM, 256QAM<br>Constellation rotation<br>LDPC FEC: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6<br>IG: 1/4, 1/8, 1/16, 1/32,<br>Bandwidth: 1.7, 6, 7, 8 MHz<br>Max. bit rate: 46 Mbps |
| DVB-T:             | COFDM 2K mode<br>QPSK, 16QAM, 64QAM<br>FEC: 1/2, 2/3, 3/4, 5/6, 7/8<br>IG: 1/4, 1/8, 1/16, 1/32<br>Bandwidth: 5, 6, 7, 8 MHz<br>Max bit rate: 31.67 Mbps   |
| DVB-S2 (optional): | QPSK, 8PSK, 16APSK, 32APSK<br>LDPC FEC: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4,<br>4/5, 5/6, 8/9, 9/10<br>Max. Symbol Rate: 31 Msymb/s  |
| DVB-S (optional):  | QPSK<br>Reed Solomon FEC: 1/2, 2/3, 3/4, 5/6, 7/8<br>Max. Symbol Rate: 31 Msymb/s  |

\*ISDB-T with interlaced (optional)

### Control & Monitorization

|                     |  |
|---------------------|--|
| Control Interfaces: | Front panel & display<br>SNMP<br>Web browser interface<br>RTC-02                     |
| Presets:            | 7 user defined presets   |
| Monitoring:         | Encoding, modulation, frequency<br>and output power, alarms, warnings and<br>logbook |

### Power Supply

|                    |            |
|--------------------|------------|
| DC input:          | 12 to 36 V |
| Power Consumption: | 100 W      |

### Mechanical

|                  |                        |
|------------------|------------------------|
| Size (W x H x D) | 111,5 x 147,5 x 220 mm |
| Weight           | 3,3 kg                 |

### Environmental

|                    |                       |
|--------------------|-----------------------|
| Temperature range: | -20 to 50 °C          |
| Aeronautical:      | RTCA DO-160 compliant |

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DVB-T2

NTT

How to order

**HDT-04-XXX-YYY**

(H.264 - 4:2:2 DVB-T/T2 High Power Transmitter)

Optional features \*

|              |                  |                     |
|--------------|------------------|---------------------|
| 000: Default | 034: AES         | 038: GPS+RM         |
| 031: GPS     | 035: GPS+KLV     | 039: GPS+RM+KLV     |
| 032: S2      | 036: GPS+KLV+AES | 040: GPS+RM+KLV+AES |
| 033: RM      | 037: S2+RM       | 041: KLV+AES        |

\* TX Frequency Ranges (YYY)

|                         |                         |
|-------------------------|-------------------------|
| 20G: 2.000 to 2.400 MHz | 44G: 4.400 to 5.000 MHz |
| 23G: 2.300 to 2.700 MHz | 50G: 5.000 to 5.300 MHz |
| 33G: 3.300 to 3.600 MHz |                         |

Application example:

High power transmitter:

|            |            |
|------------|------------|
| HDT-04-000 | HDT-04-033 |
| HDT-04-031 | HDT-04-034 |
| HDT-04-032 | HDT-04-037 |

Downlink System:

|            |            |            |            |
|------------|------------|------------|------------|
| HDT-04-000 | HDT-04-034 | HDT-04-038 | HDT-04-041 |
| HDT-04-031 | HDT-04-035 | HDT-04-039 |            |
| HDT-04-033 | HDT-04-036 | HDT-04-040 |            |

\*GPS: Integrated GPS receiver  
 S2: DVB-S/S2 modulations with L band output  
 RM: Remux function  
 KLV: SDI embedded KLV metadata  
 AES: AES128/AES256 Encryptions

Design and specifications are subject to changes without prior notice. 02/17