The GT 21 W module is part of the Tangram product portfolio. The GT 21 W module allows you to add up to 6 services in PAL / SECAM or NTSC format per module to your network. Tangram is a very high density and highly flexible solution for all kinds of networks. The WISI Tangram chassis uses a fully redundant concept (n+1, 1+1).

At a glance:
- High quality IP to analogue PAL/SECAM/NTSC modulation
- Up to 6 analogue channels on 2 RF outputs
- Outstanding signal parameters by direct digital modulation
- HD to SD downscaling functionality
- MPEG-2 H.262 and MPEG-4 H.264 decoding (SD & HD)
- For measurement / monitoring test ports of the output signal
- Temperature and output level monitoring
- RTP/ IP input streaming with FEC error correction

Technical data

<table>
<thead>
<tr>
<th>Streaming-Input</th>
<th>32 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP-Compliance</td>
<td>ISO/IEC 13818</td>
</tr>
<tr>
<td>IP-Input bitrate</td>
<td>Max. 425 Mbit/s per IPTS, Max. 850 Mbit/s total</td>
</tr>
<tr>
<td>IP-Input protocol</td>
<td>UDP/RTP/RTP+FCU Unicast and Multicast, IGMP v2 and v3</td>
</tr>
<tr>
<td>IP-TS-Input format</td>
<td>SPTS CBR/VBR, MPTS CBR</td>
</tr>
<tr>
<td>IP-FEC Inputs</td>
<td>Yes, with GTFEC License</td>
</tr>
<tr>
<td>IP-FEC Compliance</td>
<td>SMPTE 2022-1, SMPTE 2022-2</td>
</tr>
<tr>
<td>IP-Packet format</td>
<td>MPEG over UDP/IP and RTP/IP</td>
</tr>
<tr>
<td>IP-Packet size</td>
<td>188 Byte</td>
</tr>
<tr>
<td>IP-PCR restamping</td>
<td>Yes</td>
</tr>
<tr>
<td>IP-Dejittering</td>
<td>Yes, per default 100ms, individual adjustable</td>
</tr>
</tbody>
</table>

video processing
- Video decoder: 6x MPEG-2 SD (MP@ML) 1,5..15 MBit/s or 6x MPEG-4 SD (MP@ML) Level 4.1 or 3x MPEG-4 HD (MP@HL) Level 4.1

Technical data

- Video downscaling: 3x MPEG-4 HD and 3x MPEG-2 SD concurrent (PAL/SECAM) or 2x MPEG-4 HD and 2x MPEG-2 SD concurrent (PAL-M/NTSC)
- Video Format: 4:3/16:9/4:3 Zoom
- Video Standard: PAL/SECAM/NTSC
- Video scaling: Auto, Ignore, Letterbox, Pan and scan, Combined, Forced
- Vertical blanking interval: WST Teletext inserting (lines 7-15, 20-21), VPS inserting (line 16) WSS inserting according to aspect ratio
- Subtitle: DVB and Teletext (EBU) EN 300 743
- Test lines: Line 17, 18, 330, 331
- Test carrier wave: Yes
- OSD Video: Yes, text or picture PNG (<400 kB)

Packaging data

<table>
<thead>
<tr>
<th>Sales unit</th>
<th>1 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (WxHxD) sales unit</td>
<td>100 x 20 x 250 mm</td>
</tr>
<tr>
<td>Packaging volume sales unit</td>
<td>0,5 dm³</td>
</tr>
<tr>
<td>Gross weight sales unit</td>
<td>0,33 kg</td>
</tr>
<tr>
<td>Shipping unit</td>
<td>1 pcs.</td>
</tr>
<tr>
<td>Dimensions (WxHxD) shipping unit</td>
<td>170 x 75 x 340 mm</td>
</tr>
<tr>
<td>Packaging volume shipping package</td>
<td>4,3 dm³</td>
</tr>
<tr>
<td>Gross weight shipping unit</td>
<td>0,48 kg</td>
</tr>
<tr>
<td>EAN</td>
<td>4010056729776</td>
</tr>
<tr>
<td>Article number</td>
<td>72977</td>
</tr>
<tr>
<td>Customs tariff number</td>
<td>85437090</td>
</tr>
</tbody>
</table>

www amt.com
### Technical data

**OSD Radio**
Yes, text or picture PNG (<400 kB)

**Compliance**
ISO 13818-2 (MPEG-2/H.262); ISO 14496-10 (MPEG-4/H.264/AVC)

**Video parameters**
- **Differential gain** <1.5 %
- **Differential phase** <1.5 °
- **Group delay time** <50 ns (-0.5...4.4 MHz)
- **Static nonlinearity** 3 %
- **Video frequency response** ±1 dB (10...5 MHz, CCIR 18)
- **S/N Video, weighted**
  - typ. 64 dB
  - (at 1 channel; at 2/3 channels typ. 62 dB)
- **2-T Puls K Faktor** K <1.2 %
- **Test picture** Color bars

**Audio processing**
- **Audio decoder** ISO 13818-3 MPEG-1 (L1/L2), MPEG-2 (L1/L2), Dolby (Dolby and the double-D symbol are trademarks of Dolby Laboratories. Manufactured under license from Dolby Laboratories)
- **Audio Dolby Decoding** Yes, with GTDOL software option (The Dolby audio decoding functionality requires a TANGRAM GT21W HW that is Dolby enabled. You can check this on the Serial number (S/N: 0462xxxxxxxxxxxxx Dolby is enabled, S/N: 0460xxxxxxxxxxxxx Dolby is not enabled). Older TANGRAM GT21W HW versions cannot be upgraded to Dolby capability. Please contact WISI Sales for more information)
- **Audio language** ISO 639
- **Audio format** Mono/Stereo/Dual NICAM/BTSC/SAP
- **Audio format switching** Manual / auto

**Audio parameters**
- **S/N Audio** 75 % (with color testable)
- **Standard B/G/D/K/N** typ. 64 dB (weighted)
- **Standard NTSC** typ. 64 dB (weighted)
- **Standard-L** typ. 48 dB (weighted)
- **Frequency response** ±1 dB (40 Hz...15 kHz)

**VSB - AM modulation**
- **TV standards** B/G, D/K, I, L, M, N
- **Channel bandwidth** 6/7/8 MHz
- **Output level (each RF port)**
  - 117 dBμV (1 ch),
  - 113 dBμV (2 ch),
  - 111 dBμV (3 ch)
- **Output level stability** ±1 dB
- **Output return loss** ≥14 dB (45 MHz) -1.5 dB/Octave
- **Output level setting** 0...30 dB (0.5 dB steps)

### Technical data

**Spurious (outside TV-Channels)**
- 45...450 MHz, typ. 66 dB;
- 450...862 MHz, typ. 64 dB

**RF parameters**
- **Output ports** 2 pcs.
- **Channels per port** up to 3 (PAL-625/SECAM), up to 3 (PAL-M/NTSC), up to 2 (PAL-M/NTSC with BTSC)
- **Output impedance** 75 Ω
- **Output frequency** 45...862 MHz
- **Output frequency window** 34.2 MHz/port
- **Output frequency steps** 1 kHz
- **Output frequency stability** ±10 kHz

**Processing**
- **PCR correction and de-jitter** Yes
- **Processing bitrate** Max. 1200 Mbps total
- **Number of PIDs** Max. 2000 PIDs total

**Connectors**
- **RJ45** 1 pcs. (for local management)
- **F-socket RF- output** 4 pcs.
  - (2x RF-Output, 2x Test-Output -20dB ± 1dB)

**General data**
- **Power consumption** max. ≤26 W
- **Operating temperature range** -5°C...+45°C, 23°F...113°F, (ETSI EN 300 019-1-3 Class 3.1)
- **Max. humidity (non condensing)** 95 %
- **Electro Magnetic Compatibility (EMC)** EN 50083-2
- **Safety compliance** UL/CSA/CAN 60950-1
- **Signalling** Multicolor LEDs (Power on - green, Error - red)
- **Operation mode** PAL-625/SECAM, PAL-M/NTSC, PAL-M/NTSC with BTSC
- **Hardware revision** 1001
- **Software version** 3.1