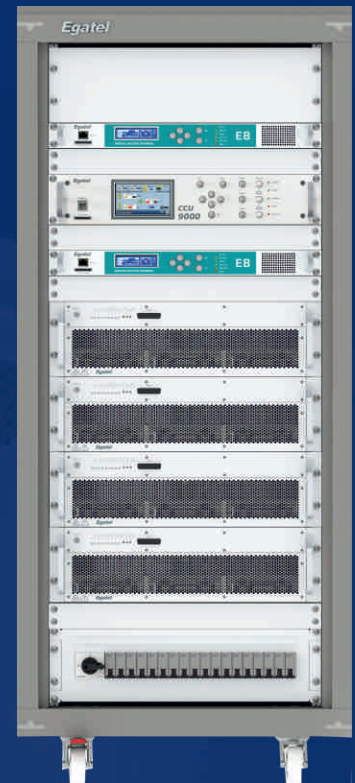


# EGATEL® TVH4000 Series

## Medium Power VHF Transmitters

Multistandard transmitter for  
TV Digital y Radio:  
DVB-T/H, DVB-T2, ISDB-T/T<sub>B</sub>, ATSC  
DAB/DAB+



TVH4000 © 2020 Egatel Spain v.1.2

## Egatel



The medium power transmitters of TVH4000 series is a compact air-cooled transmitter that provides over-the-air delivery in the VHF spectrum. Designed for digital broadcasting, the series is available in transmitter or regenerative transposer for DVB-T, DVB-T2, ATSC, ISDB-T<sub>B</sub> and DAB/DAB+.

The TVH4000 has output power levels from 300W to 2.4 KW in a single rack for digital modulations and thanks to its advanced characteristics is an ideal solution for network operators who demand excellent cost-performance.

With wideband L-DMOS architecture and top class Digital Adaptive Precorrection, the series offers high operational efficiency as well as excellent quality of service.

- Output power (rms) before filter for Digital TV up to 2.4 KW<sub>rms</sub>.
- Proprietary techniques to improve energy efficiency and use of spectrum.
- Multi-standard: DVB-T/T2, DVB-H, ATSC and ISDB-T/T<sub>B</sub>. Selection through the display or via web server.
- Input interfaces according to operation mode: ASI, TSolP or RF.
- Seamless switch between inputs.
- Adaptive digital precorrection. Linear and Non-linear.
- “Output channel” and “Impulse channel response” show via web server .
- GNSS receiver (GPS & Glonass) on board, optional.
- Quality measure output signal (QoS) option. (DVB-T/T2 & ISDB-T/TB).
- Operation as transmitter or regenerative transposer (Re-transmitter).
- Remote software upgrade of all boards.
- Removable memory card to store the equipment settings.
- Friendly Web GUI providing ease of operation.
- Remote operation via SNMP, Web Server or Dry Contacts.
- N+1 redundancy ready.

# TECHNICAL SPECIFICATIONS

## EXCITER

|                                  |   |
|----------------------------------|---|
| <b>DVB-T/-H/-T2</b>              |   |
| Standard                         | EN300744, EN302304, EN302755, TS102831, TS102773 (T2-MI).   |
| Inputs                           | 2xASI BNC (F), 75 ohm / TSolP 10/100/1000 RJ45.   |
| FFT size                         | 1K (DVB-T2), 2K, 4K, 8K, 16K (DVB-T2), 32K (DVB-T2).  |
| Code rate                        | 1/2, 2/3, 3/4, 5/6, 3/5 (DVB-T2), 4/5 (DVB-T2).   |
| Guard interval                   | 1/32, 1/16, 1/8, 1/4, 19/256 (DVB-T2), 19/128 (DVB-T2), 1/128 (DVB-T2).                               |
| Constellation                    | QPSK, 16QAM, 64QAM, 256QAM (DVB-T2). Rotated and non rotated (DVB-T2).                                |
| <b>ATSC</b>                      |   |
| Standard                         | ATSC A/53, A/54, A/64, A/153, A/110B, SMPTE-310M.   |
| Inputs                           | 2xSMPTE BNC (F), 75 ohm - 2xASI BNC (F), 75 ohm.  |
| Constellation                    | 8VSB.   |
| Date rate                        | 19.39 Mbits/s.  |
| Trellis coding                   | 2/3.  |
| Reed-Salomon encoder             | 207 / 187 / 10.   |
| <b>ISDB -T/-TB</b>               |   |
| Standard                         | ARIB STB-B31, TR-B14.   |
| Inputs                           | 2xASI BNC (F), 75 ohm.  |
| FFT size                         | 2K, 4K, 8K.   |
| Code rate                        | 1/2, 2/3, 3/4, 5/6, 7/8.  |
| Guard interval                   | 1/4, 1/8, 1/16, 1/32.   |
| Carrier spacing                  | 4 KHz, 2 KHz, 1 KHz   |
| Hierarchical modulation          | Up to 3 layers  |
| Constellation                    | QPSK, 16QAM, 64QAM, DQPSK.  |
| <b>DAB / DAB+</b>                |   |
| Standard                         | EN300 401 v1.4.1, ETI Interface: ETSI ETS 300 799 v1.5.1, ITU-T Recom. G.703, G.704 / G.823 (jitter). |
| Inputs                           | 2xG703 input connectors – SMA 75 Ω, NI(G703), NA5376(G704), NA5592(G704) - Automat. detected.         |
| DAB Mode                         | I, II, III and IV.  |
| Bandwidth                        | 1.7MHz.   |
| <b>Clock and synchronization</b> |   |
| Internal clock                   | 10 MHz.   |
| External reference               | 10 MHz BNC (F).   |
| 1pps reference                   | BNC (F).  |
| SFN                              | SFN resolution = ± 100 ns. SFN configurable delay = ± 500ns.  |
| <b>Local and remote control</b>  |   |
| Display                          | Local operation through the display and keyboard located on the front panel .                         |
| RJ-45                            | Remote network management and local operation interface (Web Server and/or SNMP agent).               |
| Parallel interface               | Floating contacts for messages and commands.  |

## VHF TRANSMITTER

| Digital Modulations (*)             | TVH4301  | TVH4601  | TVH4602              | TVH4603              | TVH4604              |
|-------------------------------------|--|----------|----------------------|----------------------|----------------------|
| Output power (before output filter) | 300 Wrms   | 600 Wrms | 1.2 KWrms            | 1.8 KWrms            | 2.4KWrms             |
| Number of amplifiers                | 1  | 1        | 2                    | 3                    | 4                    |
| Number of racks                     | 0 / 1  | 0 / 1    | 1 (19", 18U ... 42U) | 1 (19", 36U ... 42U) | 1 (19", 36U ... 42U) |
| Output RF connector                 | 7/16 (F) 50 ohm  |          |                      | 1 5/8" (F) 50 ohm    | 1 5/8" (F) 50 ohm    |
| <b>General</b>                      |  |          |                      |                      |                      |
| Frequency range                     | VHF: 170 - 240 MHz (resolution: 1 Hz)  |          |                      |                      |                      |
| Channel bandwidth                   | 6, 7, 8 MHz plus 1.7, 5 and 10 MHz for DVB-T2   ISDB-T/TB, ATSC: 6 MHz, DAB/DAB+: 1.7 MHz              |          |                      |                      |                      |
| Dimensions                          | Exciter: 1U. Amplifier: 3U. Control Unit: 2U   |          |                      |                      |                      |
| Cooling                             | Forced air   |          |                      |                      |                      |
| Power supply                        | Single phase: 100VAC ... 240VAC, 47... 63Hz. Three phase. AC: 208V/220V/240V/380V/400V/440V (50/60 Hz) |          |                      |                      |                      |
| Max. installation altitude          | 2500 m (> 2500 m on request)   |          |                      |                      |                      |

(\*) The models are referenced according to standard: TVH4xxx - DVB-T/H/T2, TVH4xxxB - ISDB-T/TB, TVH4xxxA - ATSC . Example: TVH4602- 1.2 KWrms DVB-T/H/T2.

**Remark:** To comply with the out-of-band emissions regulations and with the required shoulder attenuation, the RF output of the transmitters must be connected to an appropriate filter.