

Alcatel-Lucent 9600 DTH Fixed and Mobile TV Transmitter

LOW POWER DIGITAL TERRESTRIAL REPEATERS FOR DVB-T/H

The 9600 Digital TV Transmitter (9600 DTH) broadcasts fixed and mobile television to terminals, based on the DVB-T / H ETSI standard. It offers a choice of backhaul options and management interfaces, enclosed in a single compact rack, for easy integration into existing mobile telecommunication sites and infrastructure. The 9600 DTH enables complete urban coverage with deep indoor penetration, when superimposed (1-to-1 or 1-to-2) on the existing cellular arrangements. Or it can be used for gap filling, complementing coverage from high-power transmitters. In that case, the 9600 DTH can become the core of a high-power base, if completed by an external high-power amplifier in the kilowatts range. A complete range of indoor and outdoor installation is supported.



9600 DTH 50/100

Features

- A high-performance digital COFDM modulator adapted for cellular low-power SFN networks
- Core equipment enclosed in a standard 19" rack for easy indoor or outdoor installation
- Fault-tolerant configuration, providing full redundancy of core functionality
- Flexible input stream interfaces
- Local and remote O&M features through web browser and SNMP support
- A variety of backhauling interfaces
- A broad range of support services, including network design, hotline, repairs, on-site visits
- Single network manager for the whole 9600 DTH family

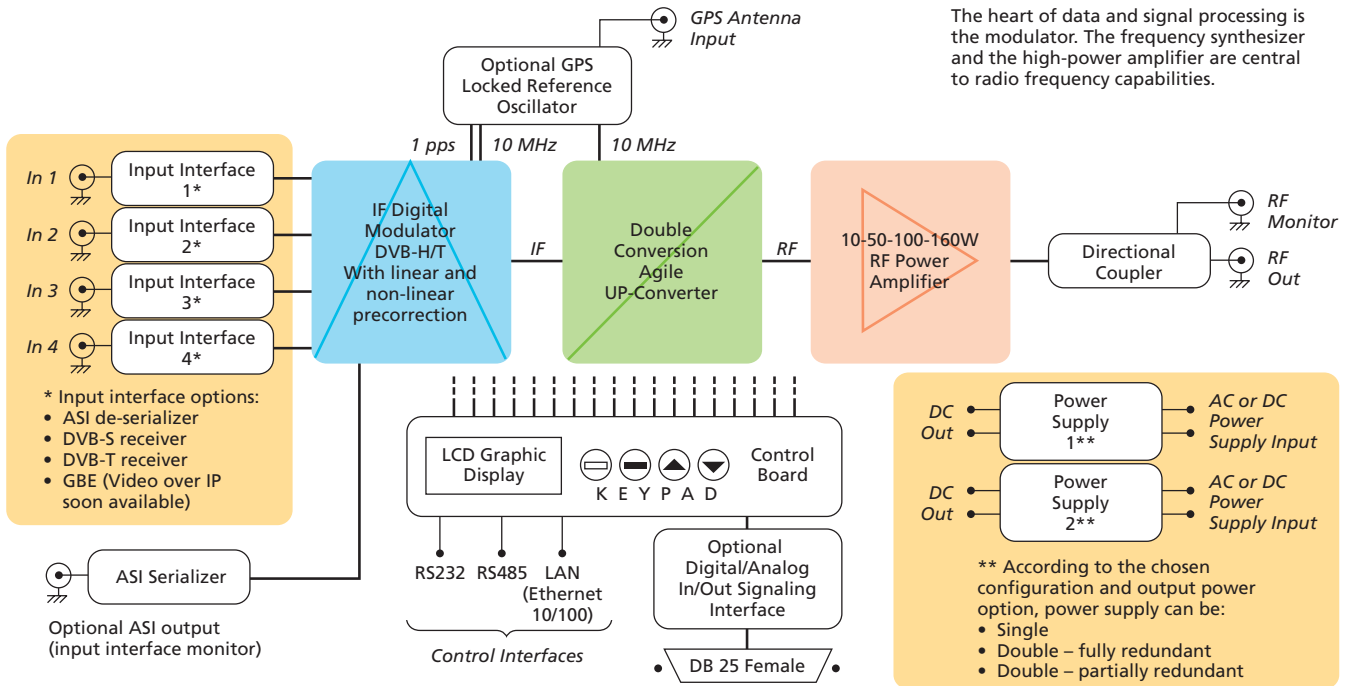
Benefits

- Low power consumption — for lower cost of ownership
- Easy installation and commissioning
- No interference with existing GSM/UMTS systems
- High-quality TV services in both outdoor and indoor environments
- Easier compliance with environmental requirements
- Reliable performance, backed by Alcatel-Lucent customer support

Applications

- Dense urban DVB-T or DVB-H fixed or mobile TV coverage
- Gap filling in single frequency network (SFN) mode
- Exciter of higher power digital TV transmitters for rural coverage

Figure 1. The main signal interfaces and control functions of the 9600 DTH transmitter



Technical specifications

Transmitter

- Output power
 - 9600 DTH 50: 50 W rms (+0/-1 dB)
 - 9600 DTH 100: 100 W rms (+0/-1 dB), 160 W rms (+0/-1 dB) with reduced MER and shoulder performances
- Output frequency range: UHF 470 MHz to 770 MHz in 1 Hz steps (option: up to 860 MHz)
- TV standard: DVB-T/H (EN 300 744)
- Output frequency stability: ± 500 Hz with high stability reference oscillator. Option: higher stabilities, including GPS locked reference oscillator
- MER (Modulation error ratio): ≥ 36 dB
- Shoulder @ $F_0 \pm 4.2$ MHz: ≤ 38 dB (without output filter)
- Spurious and harmonic emissions (with RF output filter option): ≤ -60 dBc
- RF channel filter: Separate 19-inch 4U rack

COFDM modulator specifications

- IFFT: 2K, 4K and 8K selectable
- Bandwidth: 5, 6, 7 and 8 MHz
- Guard intervals: 1/4, 1/8, 1/16 and 1/32
- Code rates: 1/2, 2/3, 3/4, 5/6 and 7/8
- Interleaver: Native or in-depth
- Data scrambling: Per ETSI 300 744
- Modulation scheme: QPSK, 16QAM and 64 QAM selectable (16QAM and 64QAM hierarchical or non-hierarchical all modes supported)
- Bit rate: Up to 31.67 Mb/s (according to bandwidth, constellation, guard interval and code rate settings)
- Network mode: MFN or SFN selectable
- Modulator settings in SFN mode: Manual or automatic from MIP data + adjustable additional delay in 0.1 μ s steps
- Digital pre-correction
 - Linear (amplitude and group-delay) and non linear (AM/AM & AM/PM).
 - Up to eight stored presets

- Output level clipping: Adjustable
- Inputs: Up to four MPEG/DVB Transport Streams with manual or automatic switching
- Transport stream output: Input transport streams monitoring through ASI output

Modulator input interface options

- ASI: MPEG Transport Stream – 75 W BNC – 270 Mbps ± 100 ppm
- DVB-S receiver: Input : -25 to -65 dBm – 75 W F female – 950 to 2150 MHz with LNB power supply; Symbol rate: 2 to 45 Mbd/s; Code rate: 1/2 to 7/8 – automatic or manual: roll-off 35%
- GbE (video over IP soon available): MPEG transport stream over IP (encapsulation as per ProMPEG code of practice #3 release 2)

Power supply

- Fully redundant for the low power version (50W)
- ± 48 VDC (42.5 – 60 V) or
- 220 VAC (185 – 275 VAC)

Dimensions

- (w x d x h): 483 mm (19") x 470 mm x 135 mm (3U)
- Weight: < 18 kg

Operating environment

- Temperature
 - 0°C to 45°C indoor
 - -33°C to +55°C in outdoor cabinet

Standards compliance

- EMC-EMI
 - EN 302 296
 - EN 301 489-14
- Safety
 - EN 60950
- Ecological ECMA TR/70