



MultiTastic



MultiTastic is an innovative multi-channel transmitter which introduces the "Cast-sharing" concept.

In today's broadcast ecosystem and scenario, main broadcasters, network operators or even municipalities operate not only one but several DTV channels. But when it comes to investment in network infrastructure (CAPEX) or future operation of such network (OPEX), the bill can become quite expensive, and the investment almost impossible to overcome when high DTV penetration is required.

In a single 4U 19" Rack, MultiTastic combines up to 7+1 (or 6+2) low power separate transmitter modules (DVB-T/H/T2 or ISDB-Tb or DAB/DAB+/T-DMB), each of them equipped with various input interfaces (Satellite Receiver or Terrestrial ASI).

A clever system of internal matrix has been implemented, so a spare transmitter module automatically takes the lead in case one fails, ensuring a full redundancy management to the system.

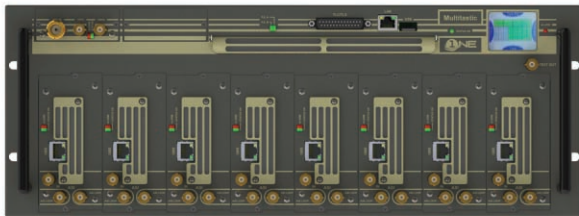
Embedded Satellite multi-switch, dual redundant hot swappable GPS receivers and power supplies secure the system operation in any situation.

Instead of investing into several separate transmitter units, as well as complex and costly redundancy management systems, broadcasters or network operators can now simply invest into a single 4U 19" rack MultiTastic transmitter and operate up to 7 channels in one compact box...

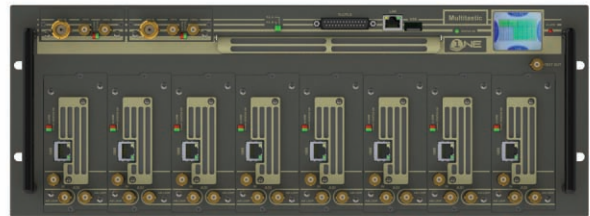
Here is Cast-Sharing!

MAIN FEATURES

- Compact 4U 19" Rack chassis
- Up to 7+1 transmitter modules (15W or 30W output power for each module)
- Several Input interfaces for each transmitter module:
 - 1 x ASI input (TS, BTS, T2MI)
 - 1 x GBE port (TS over IP)
 - Optional: 1 x DVB-S/S2 Satellite Receiver input (including CAM interface and multi-stream capabilities)
 - Optional: 1 x RF receiver input for repeater/gap-filler configuration
- DVB-T/H/T2, ISDB-T/Tb, DAB/DAB+/T-DMB modulations fully supported
- Embedded ASI and RF Matrix for redundancy management of each transmitter module
- Embedded Re-Multiplexer/BTS Adapter and Layer Combiner for ISDB-Tb
- Adaptive pre-correction circuits
- 2 x hot swappable high stability GPS receivers with battery
- 2 x hot swappable power supplies
- SNMP, Web Interface and Touch Screen display



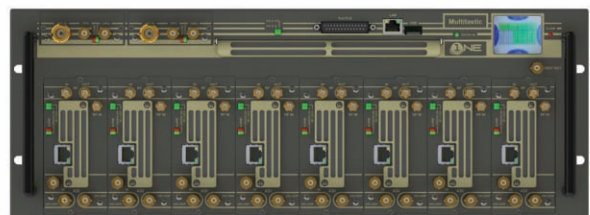
MultiTastic transmitter + 1 GPS receiver



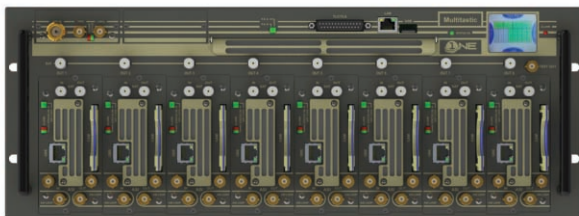
MultiTastic transmitter + 2 GPS receivers



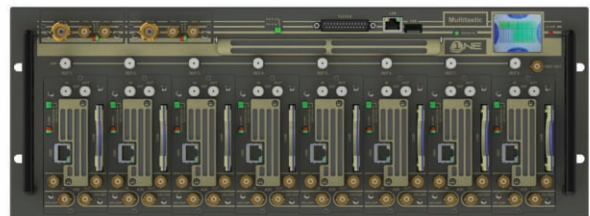
MultiTastic repeater + 1 GPS receiver



MultiTastic repeater + 2 GPS receivers



MultiTastic with satellite receiver + 1 GPS receiver



MultiTastic with satellite receiver + 2 GPS receivers

SPECIFICATIONS

CONFIGURATION

Number of TX slots: 8 hot-swappable
Protection: N+1, N+2, N+1+M+1

TRANSMITTERS

Output Power: 15 W rms per channel (up to 7 channels) @ MER > 36 dB
Frequency agility: UHF Band IV and V, 470-862 MHz or VHF Band III, 174-240 MHz
Frequency resolution: 1 Hz
Pre-correction: Adaptive
RF connector: N (f), 50 Ohm

MODULATOR

DVB-T/H/T2

Standard: EN300744, EN302304, EN302755, TS101191, TS102773 (T2-MI), TS102034
Inputs: ASI BNC (f), 75 Ohm and RJ45 TS oIP 10/100/1000. Hierarchical and not hierarchical (DVB-T, using TS oIP input)
FFT: 1K (DVB-T2), 2K, 4K, 8K, 8K ext. (DVB-T2), 16K & 16K ext. (DVB-T2), 32K & 32K ext. (DVB-T2)
Code Rate: All modalities available according to the standard
Block Short or Normal (DVB-T2)
DVB-T: Reed-Solomon (204, 188)
DVB-T2: BCH, LDPC
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 (DVB-T2). Rotated and non rotated (DVB-T2)
MISO Processing: Supported

ISDB-Tb

Standard: ABNT NBR 15601, ABNT NBR 15603
Inputs: ASI TS/BTS BNC (f), 75 Ohm and RJ45 TS/BTS oIP 10/100/1000
FFT: Mode 1 (2K), Mode 2 (4K), Mode 3 (8K)
Code rate: 1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval: 1/4, 1/8, 1/16, 1/32
Hierarchical Modulation: Up to 3 layers
Constellation: QPSK, 16QAM, 64QAM
Time interleaver: Fully supported
Partial reception: Supported

DAB/DAB+/T-DMB

Standard: EN 300401, ETS 300 799
Inputs: 4x ETI (NI[G703], NA5376[G704] or NA5592[G704]) BNC (f), 75 Ohm
Transmission Modes: Mode I, II, III, IV
(Automatically detected from the ETI stream, or user selectable)
Operation: MFN or SFN operations

Analogue

Standard: B, G, D, K, M, N, I
Inputs: Video BNC (f), 75 Ohm, audio Tini-06 "Mini XLR", 6 Pin (m), 600 Ohm
Color system: PAL, NTSC

SATELLITE RECEIVER

Standard: ETSI EN 300 421 (QPSK) (DVB-S)
ETSI EN 302 307 (QPSK, 8PSK, 16APSK) (DVB-S2)
ETSI EN 50083-9 (ASI)
ETSI EN 50221 (Common Interface)
DVB-S2: VCM, CCM, Multi Stream and Single Stream, Normal & Short FEC frames
Symbol Rate: 1 - 45 Msym/s (DVB-S)
2 - 45 Msym/s (DVB-S2)
Constellation: QPSK, 8PSK, 16APSK
FEC: Automatic, all modalities available according to the standard
Block Short or Normal
DVB-S: Reed-Solomon (204, 188)
DVB-S2: BCH, LDPC
Roll-Off: 0.2, 0.25, 0.35
Input connector: F (f), 75 Ohm
Frequency: L-band 930-2250 MHz
LNB control voltage: Off, +13/18 Vdc, 22 kHz, 0.25 A (overload protection)
RF input level: 40 - 100 db/μV (with attenuator)
Output connector: BNC (f), 75 Ohm

Modality: 188 bytes
Max input bit rate: 80 Mbps (CAM limit: 72 Mbps)
CAM interface: PCMCIA DVB-CI Common Interface
CA mode (Conditional Access): Multicrypt, Simulcrypt
Mediaguard, Viaccess, Irdeto, Conax, BISS with Professional multiprogram
CAM (descrambling of up to 24 Elementary Streams) Betacrypt, Cryptoworks,
Nagravision with standard consumer CAM (descrambling of up to 4 services.)

REPEATER/GAP FILLER

RF Input
Signal type: One DTV channel (DVB-T/H/T2, ISDB-T/Tb, ATSC)
Frequency range: 170 ÷ 862 MHz (continuous tuning)
Sensitivity: -75 ÷ 15 dBm
Selectivity: > 60 dB ± 4.2 MHz
NF (Pi=-50 dBm): < 6 dB
Conversion type: Direct Base Band Conversion (Zero IF)
Return losses: > 15 dB
Connector: N (f), 50 Ohm

Echo Canceller

Cancellation level: 40 dB, typical
Cancellation window: 20 μsec
Doppler cancellation: yes
Maximum echo level: +15 dBc (over the main signal), typical
Total delay: < 10 μsec

GPS

Input connector: N (f), 50 Ohm
Input/Monitor output 10 MHz: BNC (f), 75 Ohm
Input/Monitor output PPS: BNC (f), 75 Ohm
Phase noise: -140 dBc/Hz @ 10 kHz
-150 dBc/Hz @ 100 kHz
Stability: 1e-12 / 24 H with disciplined OCXO
Hold-over stability: 5 μs after 5 hours (optional 1 μs after 24 hours)

MECHANICAL

Chassis: 4U rack 19"
Width: 482 mm
Height: 177 mm
Depth: 420 mm without fans
Weight: 25 Kg

CONTROLS

TFT touchscreen
Web GUI
SNMP
GPIO

ENVIRONMENTAL

Operating Temperature Range: -5°C ÷ 40°C
Max. relative Humidity: 90% non condensing
Max. operating altitude: 2500 m. a.s.l, (>2500 m. optional)

ELECTRICAL

Power Supply: Single Phase 100÷240 V- 50/60 Hz, IEC320 C14 Plug
Double redundant power supply: Hot-swappable (optional)
Maximum consumption: 750 W with 8 slots at maximum power

NOTES

To comply with the applicable standards and limit values for the suppression of out-of-band emissions (and in the case of digital standards, also for maintaining the required shoulder distance), the transmitter may only be operated with suitable filters at the RF output.

Specifications are subject to change without notice.

ORDERING INFO

DESCRIPTION	Modello
Base chassis, 4RU, 8 slots, to be fitted with Multitastic plug-in transmitters for N+1 or N+2 configurations, including 1 power supply, 1 GPS receiver, multi-switch for satellite signals and ASI/RF matrix.	MULTITASTIC C1
15 W rms UHF DVB-T/H Digital TV transmitter plug-in	MULTITASTIC 15UD
15 W rms UHF ISDB-T/Tb Digital TV transmitter plug-in	MULTITASTIC 15UI
OPTIONS	
Redundant GPS receiver, hot-swappable plug-in board	Opt. G2
26 dB LNA GPS antenna kit including mounting kit and 25 mt. coaxial cable	Opt. KA
Redundant power supply, hot-swappable unit	Opt. A
DVB-S/S2 receiver board, single and multistream, with integrated CAM	Opt. S
DVB-T receiver plug-in board	Opt. R
Software upgrade for DVB-T2 modulation	Opt. T2
Software upgrade for ISDB-Tb Remux/BTS adapter and Layer Combiner	Opt. L
Dual-cast option for analogue modulation (PAL)	Opt. P
Dual-cast option for analogue modulation (NTSC or PAL-M)	Opt. N



Multitastic back panel with double redundant power supply



ONEtastic S.r.l.

Via Ghislandi, 47 · 25125 Brescia (BS) · Italy
 Phone: +39 030 3539080 / Fax: +39 030 2683019
www.onetastic.com - info@onetastic.com