



SATURN-HE

DAB+ Transmitters



Transmission power efficiency is nowadays one of the hot topics within the broadcasting products manufacturing technology, in order to efficiently answer to the governments requirement for global energy consumption reduction.

The **SATURN-HE DAB+** Transmitters are the optimal solution to implement highly efficient broadcasting stations without sacrificing long-term reliability, compactness and linearity performances. The overall top-level performances are obtained through an optimal combination of Doherty power amplifier technology and of a newly conceived digital predistortion algorithm, all accompanied by a careful choice of reliable components and durable materials.

The power amplifier can cover the whole frequency band from 170MHz to 240MHz by tuning the Doherty combiner at the desired center frequency. The typical bandwidth for each center frequency is enough to cover more than two channels.

The amplifier drawers are equipped with high-efficiency AC switching power supplies, designed to guarantee a power factor close to one with every load condition.

The optional integrated EDI Inputs allow a compact and cost-competitive integration of the SATURN transmitters with IP networks used to transport the DAB+ Ensemble from the studio to the broadcasting sites. Furthermore, the high efficiency allows a very low and easy predictable operating cost. Thanks to the new Digital Precorrection system of the SATURN DAB+ Exciter and to the top quality of the FPA Power Amplifiers, the coverage and quality performance of the radiated DAB+ signal are simply excellent. A careful design, approached with strongly oversized components and guaranteeing the presence of at least two items for each critical component, allows an intrinsic "native redundancy" concept (Power Devices, Power Supplies, Cooling



System) saving space and maximizing MTBF values.

The presence of a Central Control Unit collecting all the operating parameters from the amplifiers and from the antenna system provides a single control point able to manage all power devices currents, power supplies voltages, temperatures of the heat sinks, amplifiers output powers together with the RF power readings of the output antenna system. A multifunction display on the Control Unit allows to monitor in real-time all the operating parameters of the DAB+ Transmitter. All the transmitter in this series are remotely controllable by wired telemetry connection, by serial communication, or with Web Server and SNMP interface. Each transmitter comes with automatic seamless switching function between the ETI and EDI inputs in all combinations in SFN mode.

Main characteristics

- Minimum Energy Consumption
- High modularity, high power density, low weight
- 50V Latest Generation Power Devices
- Highly Reliable and Extremely Noiseless Forced-air Cooling System
- Wired GPIO and Serial (RS232 or RS485) Remote Control
- All Operating Parameters monitored through front-panel display
- MER >30dB, typ. 33dB
- Higher Efficiency available with minimum MER degradation
- Seamless switching between any of the ETI and EDI Inputs in SFN

Options

- Embedded GPS Receiver / Integrated EDI Inputs
- Enhanced Digital Adaptive Precorrection tailored for Doherty operation
- Output Cavity Filter / Dual-drive and N+1 Configurations
- Firmware upgradeable to DVB-T/T2/T2-Lite (with IP inputs)

SATURN-HE DAB+ Transmitters

Technical characteristics

TRANSMITTER Amplifier Type: Output Power before mask filter [W] Amplifier Gain [dB] Power Supply Voltage Power Supply Frequency Power Factor Output Connector Power Consumption [VA], typical Recommended External Breaker Value Rack Rack Size [W x D x Hmm] Airflow [m³/h] Weight DAB/DAB+ Exciter Model	SATURN250V-HE FPAIV-HE 250 21dB ±1 1P+N 230V ±15% 50/60Hz > 0.98 EIA 7/16" 750 10A 2 Poles - - 800 100 -	SATURN500V-HE FPA2V-HE 500 21dB ±1 1P+N 230V ±15% 50/60Hz > 0.98 EIA 7/16" 1500 16A 2 Poles - - 800 105 -	SATURN750V-HE FPA3V-HE 750 21dB ±1 1P+N 230V ±15% 50/60Hz > 0.98 EIA 7/16" 2250 20A 2 Poles 20U 565 x 600 x 1000mm 800 140 SATURNIOV	SATURN1000V-HE FPA4V-HE 1000 21dB ±1 1P+N 230V ±15% 50/60Hz > 0.98 EIA 7/16" 3000 25A 2 Poles 20U 565 x 600 x 1000mm 800 145 SATURNIOV
TRANSMITTER Amplifier Type: Output Power before mask filter [W] Amplifier Gain [dB] Power Supply Voltage Power Supply Frequency Power Factor Output Connector Power Consumption [VA], typical Recommended External Breaker Value Rack Rack Size [W x D x Hmm] Airflow [m³/h] Weight DAB/DAB+ Exciter Model	SATURN1500V-HE 2xFPA3V-HE 1500 21dB ±1 3P+N 400V ±15% 50/60Hz > 0.98 EIA 7/8" 4500 20A 4 Poles 28U 565 x 1000 x 1330mm 1500 260 SATURN50V	SATURN2000V-HE 2xFPA4V-HE 2000 21dB ±1 3P+N 400V ±15% 50/60Hz > 0.98 EIA 7/8" 6000 25A 4 Poles 28U 565 x 1000 x 1330mm 1500 280 SATURN50V	SATURN2250V-HE 3xFPA3V-HE 2250 21dB ±1 3P+N 400V ±15% 50/60Hz > 0.98 EIA 7/8" 6750 25A 4 Poles 42U 565 x 1000 x 2010mm 3000 350 SATURN50V	SATURN3000V-HE 3xFPA4V-HE 3000 21dB ±1 3P+N 400V ±15% 50/60Hz > 0.98 EIA 1+1/8" 9000 32A 4 Poles 42U 565 x 1000 x 2010mm 3000 400 SATURN50V
TRANSMITTER Amplifier Type: Output Power before mask filter [W] Amplifier Gain [dB] Power Supply Voltage Power Supply Frequency Power Factor Output Connector Power Consumption [VA], typical Recommended External Breaker Value Rack Rack Size [W x D x Hmm] Airflow [m³/h] Weight [kg] DAB/DAB+ Exciter Model	SATURN2400V-HE 4xFPA3V-HE 2400 23dB ±1 3P+N 400V ±15% 50/60Hz > 0.98 EIA 1+1/8" 9500 32A 4 Poles 42U 565 x 1000 x 2010mm 3000 430 SATURN50V			

Specifications and characteristics are subject to change without notice