S7HP family

200-2000 KW LONG-, MEDIUM-WAVE AM/DRM RADIO TRANSMITTER

Energy efficient, all-in-on design for long-term investment and advanced DRM services

As a forerunner in environmental-friendly solutions, Thomson Broadcast deployed the first sustainable high-power, solid-state radio transmitter systems.

With a strong vision of the future, the S7HP GreenPower series features innovative transmitter technology, which allows radio broadcasters to deploy local, regional and national radio networks, and to benefit from the latest Digital Radio Mondiale (DRM) services.

As reported by worldwide customers, the design of the S7HP family provides the best performance in the field thanks to the Thomson Broadcast state of the art modulation system and maximum serviceability. Based on its field proven reliability as well as its easy installation, operation and maintenance, the S7HP family provides the most attractive cost of ownership of any transmitter in its power range.

Long-Term Investment

The Thomson S7HP transmitter line is built to withstand decades of intensive use and is ready for any future standard. A simple push of a button allows the easy switch from AM to DRM mode. Moreover the S7HP exciter features the possibility to simulcast AM and DRM signals, thus facilitating the smooth migration to digital. To meet the long-term investment requirements, the S7HP transmitter series is ready for any DRM standard evolution.

Complete Modularity

The S7HP family provides a solution for all levels of output power and comprises one “all-in-one” power amplifier block or multiple blocks with a simple combiner system, which does not require the extra complexity of a balancing load. Each amplifier block provides up to 400kW RMS using 256 power modules. The redundant power modules are fully interchangeable for cost savings and do not require any adjustment to cover all long- or medium-wave frequency ranges.

Lowest Cost of Ownership

During a radio transmitter lifecycle lifetime the overall operating expenditures, including energy consumption and maintenance intervention can be quite expensive.

Taking into consideration the constantly increasing cost of electricity, Thomson Broadcast has been studying ways to decrease energy consumption with best efficiency. The compact S7HP therefore features an all-in-one amplifier block, which includes a built-in transformer, power supply, control circuits, and a direct coupling combiner for multi-block version, and thus generates a lower footprint cost. In parallel, simplified transmitter procedures and excellent reliability contribute to keeping maintenance expenditures as low as possible. This combination of factors allows the broadcaster to benefit from a rapid return of investment.

Best Efficiency

Thomson provides the highest overall radio transmission system efficiency - up to 88% including the cooling system.

KEY FEATURES

- Drastic energy savings
- Efficiency of up to 88 %
- Compact footprint
- Long-, Medium-wave
- AM/DRM
- Modular configuration
- Mixed air/liquid cooling system
- Outstanding reliability with rotation of active modules
- Automatic recovery
- Easy maintenance with access to all modules
- Embedded Web server and SNMP agent included as standard
- 1st class references worldwide

The S7HP amplification chain is based on direct synthesis so as to avoid inefficient intermediate stages. To reach unrivalled AM performance, built-in energy savings modes are embedded - Dynamic Carrier Control (DCC 1 to 4) as well as Amplitude Modulation Companding (AMC) and Enhanced AMC (E-AMC). With the switch to digital modulation, the same coverage is achieved with substantial energy savings.

Thanks to a single transformer and an efficiency of up to 98 percent of the AC power regulator, additional savings are generated.

High Performance, Exemplary Reliability

The innovative rotation of the 256 active amplifier modules enhances the outstanding reliability as equal workload is applied to all amplifier modules and thus guaranteeing less thermal stress and permitting a longer lifetime. Furthermore, an automatic recovery system ensures continuous signal availability, even in case of multiple module failure.

To meet redundancy requirements, the dual-drive digital exciter configuration is proposed as an option as well as a parallel-dual-pump for the liquid cooling system.

Based on a direct combining design, the S7HP transmitter family is designed to provide exceptional reliability thanks to its robustness and design simplicity.

If one amplifier block becomes unavailable, it is possible to reconfigure into the system to a N-1 mode. This N-1 mode allows test load maintenance to be carried out. What's more, the voltage design and current handling capacity permit continuous, safe availability of the system.

Mixed Cooling Systems for Additional Savings

For high-power ranges, the liquid cooling system lets amplifier modules operate with a low junction operating temperature of the transistor. This allows for extended component life. With a closed liquid cooling circuit, the replacement of amplifiers is achieved without any disconnection of the liquid cooling circuitry.

To meet all specific climatic conditions, the combined air/ liquid cooling system can be customized for extreme environmental conditions.

Ease of Maintenance

Extreme reliability permits the broadcaster to save on both maintenance staff and equipment expenses. It also reduces the downtime during repair and routine maintenance periods.

Maintainability is enhanced by easy access to all independent modules. A front door for block units allows for fast and easy maintenance procedures.

Advanced Monitoring

Thomson Broadcast has always been a leader in the ergonomic design of transmitter control and monitoring systems. The local human machine interface provides the operator with all the necessary functions to operate a single amplifier unit. Whereas a high-level display control system operates multiple blocks. The embedded Web server and SNMP agent remotely deliver a real-time and comprehensive display of the transmitter's status. They also provide the identification and precise location of any fault, allowing rapid diagnosis and maintenance.

Turnkey DRM Solution

The S7HP family represents a huge opportunity for broadcasters, whether for the replacement of current equipment or to further digital radio deployments. The S7HP transmitter family lets the broadcaster benefit from the most advanced energy-efficient technologies, combined with the latest advanced spectrum digital standards. This all adds up to major operational cost savings.

The system, which supports the DRM standard and surround sound audio quality, allows for multimedia and data services such as Journaline® (personalized news), Electronic Program Guide (EPG), text messages, MOT slideshow, traffic info, general alert feature as well as the Diveemo application (video). All of these features can create new revenue streams.

With a long history of offering turnkey radio broadcasting systems, Thomson Broadcast proposes network planning and engineering services, antennas, masts, auxiliaries, as well as Service Level Agreements.

SPECIFICATIONS

	LONG- WAVE			MEDIUM- WAVE		
Number of blocks	1	2	3	1	2	3
Product name	TLW 2400	TLW 2800	TLW 21200	TMW 2400	TMW 2800	TMW 21200
ANALOG AM						
Carrier output Power (kW)	250 300 400	500 600 800	900 1000 1200	250 300 400	500 600 800	900 1000 1200
DIGITAL DRM*						
RMS Output power (kW)	-	-	-	250	500	750

Frequency Range

MW band: 531 kHz - 1602 kHz
LW band: 153 kHz - 281 kHz

Analogue AM Modulation

Double Side Band (A3E)

- With Dynamic Carrier Control (DCC) 4 standard curves
- With AM companding (AMC) - 1 standard curve
- With Enhanced AM companding (EHC) - 1 standard curve
- Other DCC customized curves may be available

Digital AM Modulation

- DRM digital according to ETSI ES 201 980
- Channel bandwidth 4.5, 5, 9, 10, 18, 20 kHz
- Mode Type ABCD

Simulcast mode

- Any analogue + DRM according to ETSI ES 201 980

Modulation capability

Permanent output power capability

- 75% average modulation rate including 10 minutes per hour with 100%
- 1 tone sine wave modulation over the temperature range

Positive peak modulation capability

- Carrier plus up to 125% according to model.

S7HP family

GreenPower

ORDERING INFORMATION

Please contact your authorized Thomson Broadcast representative.

HEADQUARTERS

Thomson Broadcast
1, rue de l'Hautil
78700 Conflans Sainte Honorine
FRANCE

PROFESSIONAL SERVICES

Our professional services offerings ensure optimal system performance and maximize uptime. These services include call centers staffed around the clock; system planning, design, and commissioning; professional training courses; and technical maintenance programs and service agreements.

www.thomson-broadcast.com

FINANCING

Financing is available through Thomson Broadcast financial services. Please contact your products representative for more details.

 CDT-RadS71

THOMSON