

RADIO
SOLUTIONS

THOMSON

▶ BROADCAST

TMW-50KW

AM BROADCAST TRANSMITTER



thomson-broadcast.com

PHENIXYA

THOMSON BROADCAST'S DNA

Thomson Broadcast benefits from proven experience with the biggest number of high power Long and Medium Wave transmitters installed on the 5 continents.

Based on decades of expertise in analog and digital signal processing and continuous research, the architecture of the TMW-50kW integrates all latest Thomson Broadcast innovations. High reliability and superior signal availability combined with high efficiency make the TMW-50kW a solution for energy savings.

The TMW-50kW integrates innovative technologies. This new transmitter allows radio broadcasters to deploy local, regional and national radio networks, while benefiting from the latest Digital Radio Mondiale (DRM) services.

With the biggest number of high-power Long and Medium-Wave transmitters installed on the 5 continents, **Thomson Broadcast** benefits from a long field AM/DRM experience and worldwide customers full satisfaction. The manufacturing of the different sub-assemblies of the transmitter relies on long standing know-how.

Enhanced reliability Silicon Carbide (SiC) transistors and an advanced compact Unit Control System (UCS) are part of the design of the TMW-50kW.

SiC transistors allow for higher circuit efficiency as compared to the former Si-based technology and offer incomparable reliability and efficiency.

The design of new high-efficiency power modules allows to use twice as less amplifiers as the on the legacy TMW-50kW for the same output power.

The cyclic operation of the active amplifier modules enhances outstanding reliability as equal workload is applied to all amplifier modules, thus guaranteeing less thermal stress and permitting a longer lifetime.

The compact user interface UCS combines the transmitter control and the AM / DRM modulation strategy. The built-in Web server allows simple local and remote control of the transmitter.



WE PROVIDE COMPLETE RADIO SOLUTIONS

PROJECT SUPPORT

Consulting services / Financial engineering / Project management / Coverage studies / Site surveys / Energy & system engineering

PRODUCTS

Complete radio transmitter range / All digital standards, High and medium power range, RF auxiliaries / Head-ends / Antennas

SERVICES

Installation / Commissioning / Training / Service Level Agreement (SLA)

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TMW-50KW

Main Characteristics

- ✓ RF Power Amplifier with hot plug-in/out (optional).
- ✓ Dual RF/PDM Exciter with automatic switching (optional).
- ✓ Anti-lightning output filter.
- ✓ Three-phase PDM modulation.
- ✓ LAN-IP telemetry.
- ✓ SCR-controlled rectifier.
- ✓ Automatic power reduction with SWR greater than 1.5:1; transmitter do not put off air.
- ✓ Internal VDR transient suppressors.

Best efficiency

Thomson Broadcast provides the highest overall radio transmitter efficiency — up to 88% including the cooling system. Built-in energy saving modes of operation — Dynamic Carrier Control (DCC 1 to 4) algorithms as well as Amplitude Modulation Commanding / Enhanced (AMC/EHC) make it possible to reduce the power consumption without degrading the coverage. In digital modulation, the same coverage is achieved with substantial energy savings

Reduced operating costs

Cost of ownership, reducing monthly bills and simplification of serviceability are decisive for broadcasters.

The compact TMW-50kW combines lower footprint and high efficiency.

To meet all specific climatic conditions, dual air/ liquid cooling systems can be tailored to extreme environmental conditions.

Highly reliable amplifier modules and easy access to these ones, fast and easy maintenance procedures reduce the cost of serviceability.

Active redundancy

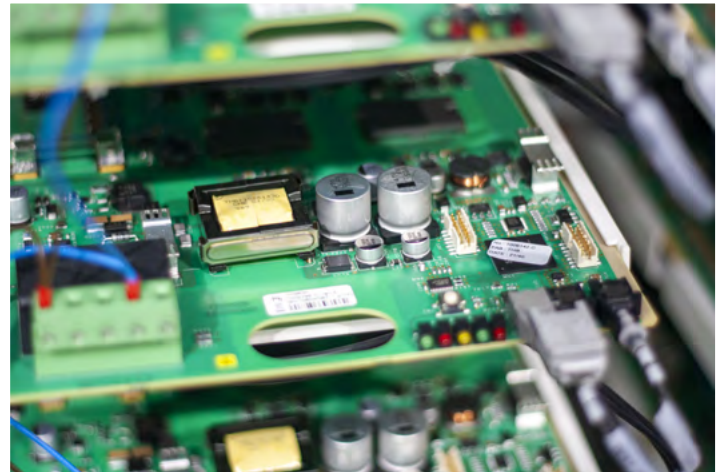
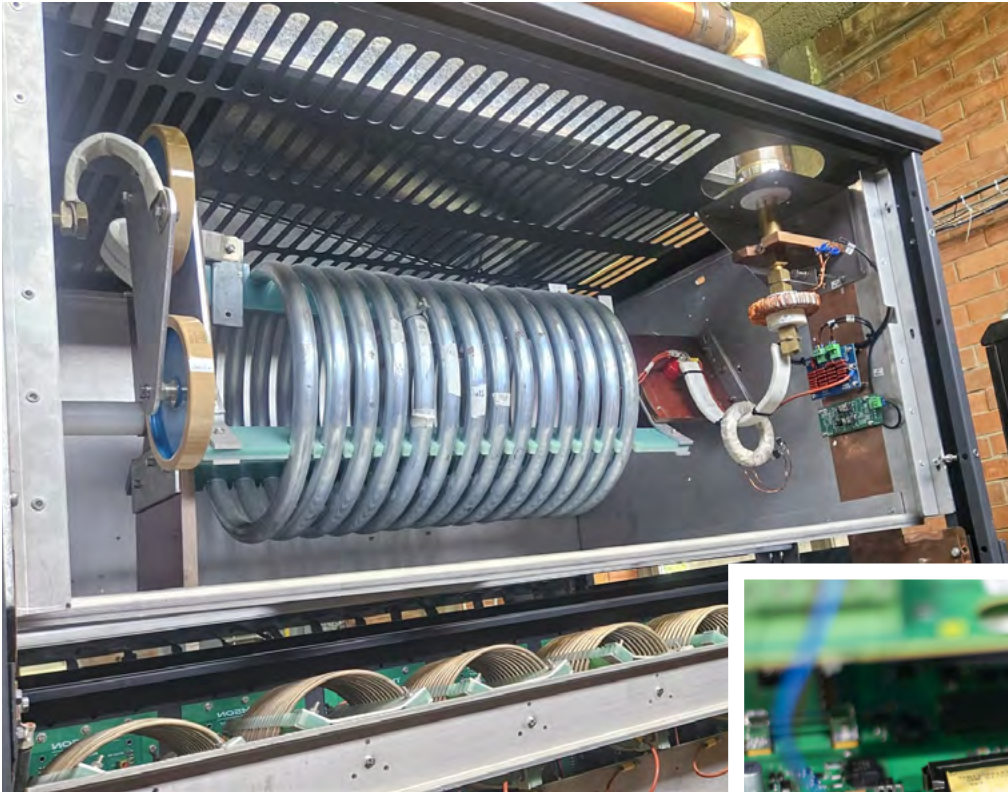
Active redundancy is guaranteed by amplifier modules kept in standby. InN multiple-block configurations, the failure of one block results in re configuring the system into N-1 mode, allowing for the maintenance of the faulty block on test load.

Complete Modularity

TMW-50kW Neo family provides solutions for all levels of output power based on 400 kW blocks that can be combined in high power

Advanced Monitoring

Thomson Broadcast has always been a leader in the ergonomic design of transmitter control and monitoring systems. Featured with a large touch screen, the local man machine interface provides the operator with all the necessary functions to operate a single amplifier unit. A high-level display control system operates multiple blocks. The web server and SNMP agent remotely



deliver in real time comprehensive information showing the status of the transmitter. They also provide the identification and precise location of any fault, allowing rapid diagnosis and maintenance.

Turnkey Solution

The TMW-50kW represents a huge opportunity for the replacement of ageing equipment or for new deployments of digital radio. The TMW-50kW transmitter lets the broadcaster benefit from the most advanced energy-efficient technologies, combined with the latest advanced spectrum digital standards. The system, which supports the DRM standard and surround sound audio quality, allows for multimedia and data services such as Journa- line® (personalized news), Electronic Program Guide (EPG), text messages, MOT slideshow, traffic info, general alert feature as well as the Diveemo application (small-

scale video transmission via Digital Radio Mondiale - DRM). All these features can create new revenue streams.

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

SPECIFICATIONS

Specifications and designs are subject to change without notice.

Output Power & Configuration	48 RF Modulated Power Amplifier for 1.750 watts peak each, 50.000 watts@140% Modulation peak or 55.000 watts @125% Modulation peak.
RF Power Level	Four independent power level control P1 to P4. Local/Remote and programable.
Frequency Range	525Khz / 1710Khz Setting one fixed channel
Frequency Stability	+/- 1,5ppm to 0°C – 40°C
VSWR	1.5:1 With automatic RF Power Level Reduction.
Impedance	50-Ω unbalance.
RF output Connector	3-1/8" EIA Type.
Spurious / Harmonics	ITU-R SM.329-8 (≤ 50 mW from 9 kHz to 1 GHz)
Out-of-band emissions	According to ITU-R SM.328-10
Modulation system	Polyphase Pulse Duration Modulation (PDM)
Audio Input	+/-10 dB to 600 Ohm balanced for 100% modulation
Internal Low-Pass filter Audio	4.5Khz / 6.5Khz
Audio Response	+/- 0.3 dB 30 Hz to 10 kHz
Audio distortion THD	+/- 1% at 80% modulation
Peak Modulation	150% peak to nominal power. 125% peak to 10% over power.
Carrier shift	Better than 1%
S/N	Better than -60 dB referred to 100% modulation 400Hz
Main Supply	230Vac / 400Vac Wey (+/-10%) 3-Phase Delta or Star system 50-60Hz.
Power Factor	0,95
Temp \Humidity Operation	0-40°C / 0%-95% No Cond
Altitude	0 to 4000 a.s.l.
Power consumption	Better than 12.1 kW without modulation / 17.7 kW with 100% modulation
Overall Efficiency	>/87%
Front Panel meter	Auxiliary and Principal Voltage/ Currents AC/DC. Direct and Reversed Output Power and Ambient Temp. RF Modulated power amplifier: Individual RF-drive, Temp, Voltage and Current.
Local control	Local / Remote, Transmitter On / Off, RF power Level P1 / P2 / P3 / P4, Status Alarms and Reset. Status Modem/Lan-IP Telemetry. Ethernet interface with HTML web server (Option) Serial interface RS 232 (Option) PC-USB and Bluetooth Serial Interface.
Cooling system	Air cooling with internal fan assembly below the power block Cooling air consumption approx. 3.600 m3/h External blower system with filtering and air ducts on request.
Dimensions WDH	2 cabinets: a) RF-PA: 1860mm x 800mm x 1.920mm.

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