Radio Broadcasting Equipment

Digital (DAB, DAB+)

SFT DAB Series - compact & modular digital radio transmitter - also available with extreme efficiency (XE)

Thanks to the improved digital adaptive precorrection and configuation flexibility, the high efficiency of the new SFK amplifiers, the Hot Swap System technology, the compactness and smart system design, the SFT/XE DAB are state of the art transmitters. They support standards DAB, DAB+ and T-DMB and are compatible with major headend brands.

Reaching the highest technology level in both digital signal processing and RF domain

Product range: *Compact from 1mWrms to 600Wrms*
Modular from 300Wrms to 15kWrms

DAB Digital Audio Broadcasting

DAB+ Digital Audio Broadcasting

DTMB

** optional*

Scan me for 3D view
SFT DAB 050/C

Efficiency Enhancement

The combination of ARK-X exciter and SFK amplifiers with all their benefits.

Hot-pluggable power supply units easily accessible from the front panel of amplifiers.

Multiple configurations with high scalability.

Hot-pluggable fans for quick and easy maintenance.

MAIN FEATURES:

Software and Hardware Versatility

The software and hardware in the SFT DAB systems are totally versatile as they can be set with different standards and configurations. Thanks to the SWDT® (Software Defined Transmitters) technology the modulation patterns can be set either digital or analog (DVB, ATSC, ISDB-T, DTMB, DAB, DAB+, T-DMB, ATV, etc.) in the same hardware. It allows an easy selection of the operating modes remotely, via SNMP commands, via TCP/IP or even via a dedicated command inserted into the transport stream. In addition, thanks to the UAS (Universal Adaptiveness System) the machine can be set as a transmitter, heterodyne transposer, regenerative transmitter and gap filler, all in one hardware component.

Efficiency to the extreme

Each SFT DAB transmitter is available with XET technology (eXtreme Efficiency Technology). Using the latest generation of LDMOS devices, more robust and efficient than in the past, and with a special low-loss design of the matching and combination system, together with very high efficiency power supplies (over 96% efficiency), this technology allows surprising transmission performance and several advantages: greater efficiency, compact dimensions and reduction of cooling systems are just some of the improvements obtained. The XET technology, applied to the amplifier section of the TV and DAB transmitters, guarantees an RF efficiency higher than 50% and an overall efficiency up to 42% without decreasing the performance in terms of M.E.R. (Modulation Error Rate) and shoulder.

Quick and economical maintenance

Thanks to the clever placement with direct access of the fans at the back and outside of the transmitters and thanks to the ease of access and removal of the of the hot pluggable power units at the front of the transmitters and amplifiers, with the SFT DAB transmitters you save time and money in maintenance.

Smart design

SFT DAB transmitters are compact and lightweight, so they can be installed in places with reduced space and managing them logistically is absolutely not a problem. The N+1 logic control units reduce the need for multiple backup transmitters by ensuring automatic switching in the event of a failure and automatic loading of the faulty transmitter configuration onto the spare one for a system always at full power. In addition, each exciter and amplifier have the Anticorrosive Protection System, which is a special treatment applied to the surface of the aluminium body of the transmitters and to some of its components, preventing corrosion due to humidity or sudden changes in temperature and increasing reliability and longevity.

Remotely controllable

Wwith DB's Web Interface, extremely detailed and intuitive and with all main parameters fully controllable and adjustable, you can remotely check the status of the transmitter and set malfunction alerts for prompt intervention. The firmware can also be updated remotely, and the personal data settings can be easily backed-up.

UAS

SWDT

APS

HSS

RCS

AIR COOLING

LIQUID COOLING

WEB INTERFACE

N+1

Digital Radio and DAB: Multiple configuration flexible hardware and software

DB Design

DB has always been committed to offering products that are not only technologically advanced but also highly functional to facilitate any user operation and above all to reduce maintenance and logistics costs. Thanks to the continuous work of perfecting the design of its products, today DB can boast models of transmitters and amplifiers that are extremely compact, light weight and with simple and intuitive functions but combined with the highest reliability and ruggedness.

Smart Design
Thanks to its research and development center, DB is constantly working to improve the design of its products so that the interaction between user and devices is always easier, more intuitive and maintenance faster and cheaper. The clever placement with direct access of the fans in the back and outside of the transmitters and amplifiers and that of the power supply units with easy access are the result. Such as the combination of latest generation RF combiner technology with ultracompact unbalancing dummy loads and a smart intercommunication interface between RF modules, drivers, and Logical Control System.

Compact Design
The compact design of the transmitter allows the latter to be used in environments with limited space and grants an easier and economical logistics management.

High Scalability
The special design of the transmitters and amplifiers allows multiple configurations with high scalability which guarantees maximum flexibility and simplicity in the management of spare parts.

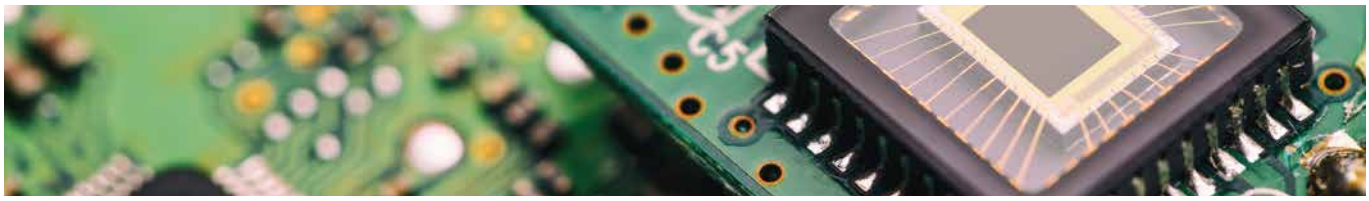
International Standards
Meets or exceeds all safety standards and international electrical specifications, making DB products suitable for any market and condition.

Color Display
LCD display for easy navigation, viewing and setting management.

Control Panel
Front panel with simple and intuitive controls. Buttons for direct activation of main parameters and indicator lights showing their status and signaling any malfunctions.

DB Technology

DB firmly believes that innovation is a powerful tool for a better future and for this reason, since 1975, it has always been committed to investing in its Research & Development Department to design equipment with ever better quality and efficiency. Our technicians always take the utmost care in the small details to offer customers a product that is not only efficient but also easy to interact with. The result of all this can be seen from the fact that DB has sold and installed more than 80.000 transmitters in 180 countries around the world, becoming a leading company in the market.



XET

XET ™ (eXtreme Efficiency Technology): using the latest generation LDMOS devices, more robust and efficient than in the past, and with a special low-loss design of the matching and combination system, together with very high efficiency power supplies (over 96% efficiency), this technology allows surprising transmission performance and several advantages. The XET technology, applied to the amplifier section of the digital DAB transmitters, guarantees an RF efficiency higher than 50% and an overall efficiency up to 42% without decreasing the performance in terms of M.E.R.(Modulation Error Rate) and shoulder.

SWDT

SWDT® (Software Defined Transmitters) technology implement different modulation patterns, either digital or analog (DAB, DAB+, T-DMB, etc.) in the same hardware. It allows an easy selection of the operating modes remotely, via SNMP commands, via TCP/IP or even via a dedicated command inserted into the transport stream.

UAS

The Universal Adaptiveness System is the result of years of research and represents the state of the art of DTV and DAB transmitters technology worldwide. This system guarantees an incredible hardware configuration capability, using a very simple and intuitive software that is accessible both locally and remotely. It is perfect for international broadcasters to increase the manageability of investments by reducing the types of transmitters and for national broadcasters thanks to its versatility in operating modes and configuration. The UAS can allow the user to set up the machine as a transmitter, heterodyne transposer, regenerative transmitter and gap filler, all in one hardware configuration.

APS

Anticorrosive Protection System is a special treatment applied to the surface of the aluminum body of the transmitters and to some of its components, preventing corrosion due to humidity or sudden changes in temperature and increasing reliability and longevity.

HSS

With the Hot Swap System present in the transmitters it is possible to carry out maintenance on the power supplies with the equipment on and on-air in less than 2 minutes as well as for the amplifiers in modular transmitters. Even the cooling fans can be removed, cleaned or replaced in just 2 minutes thanks to their placement outside the unit.

Responsive Cooling System is an optimized and highly efficient cooling system. Thanks to the ability to react to changes in temperature of the transmitter or the environment, the system guarantees correct operation and optimal performance even in extreme climatic conditions or in the presence of high temperatures. The cooling system keeps the internal critical components always in perfect operating conditions.

The DB air cooling system not only prevents the device from overheating but extends the life of the transistors by far. In the transmitters and amplifiers the fans are mounted externally to allow easy and quick cleaning, or possible replacement, without opening or removing any module and without interrupting the operation of the transmitter.

An oversized heat exchanger, single or double (optional), suitable for outdoor or indoor installation, and equipped with single or double pumping system (optional) for maximum redundancy, is the main component of DB's powerful liquid cooling system. Thanks to the special design of the liquid cooled heat sinks inside the amplifier and the low pressure liquid distribution, this system ensures high reliability, cooling efficiency and ease of installation.

Extremely detailed and intuitive web interface with all main parameters fully controllable and adjustable. Ability to remotely check the status of the transmitter and set malfunction alerts via e-mail and/or SNMP Trap for prompt intervention. Firmware that can also be updated remotely and an easy back-up system for personal data and configuration.

The N+1 control logic units reduce the need for multiple backup transmitters by ensuring automatic switching in the event of a failure and automatic loading of the faulty transmitter configuration onto the spare one for a system always at full power.

Main Common Features

- **4x ASI** MPEG-TS seamless input.
- **2x GbE** Ports: GbE 1:10/100/1000 Base T Management port.
- Compatible with major headend brands, field-proven.
- Compact, flexible and easy to use in any DAB network.
- High power in extremely compact size and top-level efficiency.
- **Built-in SFN adapter** and very advanced SWDT®, Software Defined Transmitters technology.
- **EDI/ETI seamless switching** with full FEC control tested and no broadcasting interruption.
- Typical MER >33dB at all power levels and in all channels with shoulders >37dB without mask filter.
- Highly stable in SFN network thanks to high quality local oscillator working in combination with embedded GPS built-in receiver.
- Total remote control through built-in web server SNMP. The internal web server allows an easy monitoring and configuration through a LAN connection and a standard web browser.
- High reliability, scalable and flexible configuration modes: dual drive, passive standby or N+1.
- Liquid or air cooled.
- Supported standards: **DAB**, **DAB+**, **T-DMB** optional
- Frequency range: VHF (III) 170 MHz to 255 MHz, L band on request.
- DAB-Modes: I, II, III, IV.
- Network type: MFN, SFN.
- Bandwidth 1.536 MHz.
- Reference Standard: ITU-T G703-G704, EN 300401, EN 300799, EN 302077-2.
- DAB Signal Input:
  - ✓ **ETI** (NI) 2.048 MHz or ETI (NA), according to ETSI EN 300 799 Input Connectors: BNC (F), 75
  - ✓ **EDI** (Encapsulation of DAB Interface) according to ETSI TS 102 693 Input Connectors: Ethernet, RJ45
- Integrated **GPS/GNSS** Professional Receiver.
- Built-in **high stability OCXO**.
- Fully qualified for SFN – Hitless input switching
- Management: Embedded SNMP v3 server - Embedded Web server
- Integrated GbE interface
- **Linear and non-linear Adaptive digital pre-correction** circuits, with automatic curves loading for each channel and power levels.
- Wide Range Power Supply 90-264 V AC (3 phase) in fuse-free configuration (SW Standby Switch).
- Quick-acting protection circuits against overpower and direct/reflected power.
- Protection against reflected power with automatic fold-back.
- **New GUI Interface**: Multi User/Multi level/Multi language
- Easy SW/FW update.
- **Security Authentication** for GUI access.
- High-Definition Color Display.
- MNSC Analyser embedded.

Technical Specifications		
Frequency range	VHF (Band III)	170 to 255 MHz, in 1 Hz Step. L-Band on request
Available standards (all standars are full compliant)	Digital Audio Broadcasting	DAB, DAB+, T-DMB (on request)
Power Supply	AC Line Voltage	380 to 415 (3 phases), 208 to 240 Delta or Star; 47 Hz to 63 Hz (specify at order)
	AC Line variations	+/- 15%
	Power factor	0,98
Environmental Conditions	Altitude	max 2500 m above sea level (> 2500 m on request)
	Operating temperature range	-10°C to +45°C at sea level, upper limit derated of 2 °C per 300m over 1000 m above sea level
	Relative humidity	95 %, not-condensing
	Cooling method	Forced Air /Liquid with external heat exchanger with redundant pump and fan
RF output	Output power range	Up to 15 kW rms
	RF load impedance	50 Ohm
	VSWR	Power reduction after exceeding the set value or switch off after three attempts
	RF Output connector	See Specific Data Sheet or selection table in the next page
Transmitter size	Rack Unit, Weight, Dimensions	See Specific Data Sheet or selection table
Synchronization	Reference frequency	10 MHz, 0.1 V to 5 V (Vpp) or TTL, BNC
	Reference pulse	1pps (1 Hz, TTL, BNC)
Operations Control and Monitoring	Remote	Web based Interface
		SNMP V2c (V3 on request)
		Telnet access via ethernet
	Local	Extensive front panel control (color display, keypad)
		Local terminal on RS232 or LAN
		USB for upgrade
Compliance and Conformity	RoHS	2011/65/EC
	Radio Equipment Directive (RED)	2014/53/EU
	Safety	EN 60215
	EMC	EN 301-4891-1 - ETSI EN 302 296-2 V1.2.1 (2011-05)
	WEEE	2012/19/EU
	Manufacturing	ISO 9001:2015

Specifications may be subject to change without notice


CONNECTING EMO

TIONS WORLDWIDE

DB DAB antenna

We provide a wide variety of aluminum and stainless steel antennas suitable for DAB broadcasting contribution and distribution networks; we can also deliver many antenna systems. We use a powerful solid CAD model system design software with international orographic maps converted from satellite surveys to optimize the antenna system based on the network specification. Antenna systems can be Omnidirectional or Directive, depending on the requested coverage area.

Available DB DAB Antennas are:

- ***P1/DAB Series***

  FM dipole antenna for DAB band in aluminium alodine, suitable for omnidirectional coverage antenna systems in vertical polarization.

- ***PX3/DAB Series***

  Yagi stainless steel antenna for DAB band, suitable for directional patterns in vertical polarization.

- ***LOG/DAB Series***

  DAB logaritmic antenna in stainless steel with 8 elements, suitable for directional coverage in vertical or horizontal polarization, completely demountable.

- ***APFM/DAB Series***

  DAB double dipole panel antenna in aluminium alodine, suitable for directional patterns in vertical or horizontal polarization, with high gain and very high performances.

P1/DAB SERIES

Wide band DAB dipole antennas in aluminum alodine. It is designed to work in one of the two sub-bands of DAB broadcast band (174 - 225 MHz or 200 – 240 MHz). The correct frequency must be specified at the moment of the order.

The radiation pattern is omnidirectional with vertical polarization.

By stacking more antennas it is possible to increase the gain of the system and power handling capacity accordingly to the user's requirements. Custom patterns, electrical beamtilt and null fill design are available on request.

All metal parts are electrically grounded ot prevent possible problems related to lightning. The input connector is protected against rain and icing by a special housing.

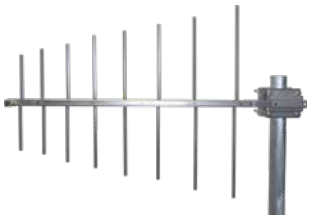
PX3/DAB SERIES

Wide band Yagi DAB antennas in stainless steel with PTFE insulator. It is designed to work in the whole DAB broadcast band (174 - 225 MHz).

Thanks to the directional radiation (with 5.2 dB gain) and the vertical polarization, it is suitable for customized pattern. By stacking more antennas, in fact, it is possible to meet customer's requests about specific areas to cover or to increase the gain of the system and power handling capacity. Custom patterns, electrical beamtilt and null fill design are available on request.

All metal parts are electrically grounded ot prevent possible problems related to lightning. The input connector is protected against rain and icing by a special housing.

LOG/DAB SERIES



Wide band DAB antennas in stainless steel with PTFE insulator. It is designed to work in the whole DAB broadcast band (170 - 240 MHz).

This model of antenna is demountable in order to reduce the shipment costs and stocking volumes.

All metal parts are electrically grounded ot prevent possible problems related to lightning.

AFPM/DAB SERIES

Wide band double dipole DAB antenna panels in stainless steel with PTFE insulator. It is designed to work in the whole DAB broadcast band (170 - 225 MHz).

Thanks to the directional radiation (with 7.5 dB gain) and the vertical polarization, it is suitable for customized pattern. By stacking more antennas, in fact, it is possible to meet customer's requests about specific areas to cover or to increase the gain of the system and power handling capacity. Custom patterns, electrical beamtilt and null fill design are available on request.

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