

Brief Specifications

Transmission Mode	Solid State VHF Digital Audio Broadcasting				
Cooling System	Open loop or pressurized closed loop liquid cooled system using appropriate mixture of water and Antifrogen-N as the coolant Automatically controlled thermostatic mixing valve High quality, high efficiency Heat Exchanger with automatically temperature controlled cooling fans Redundant Pump Unit includes temperature, pressure and min/max coolant level sensors with Smart Standalone Cooling Control Unit Configurable to be implemented inside/outside of the transmitter Rack				
Operation Temperature Range	0°C to 45°C				
Storage Temperature Range	-20°C to 55°c				
Relative Humidity	Up to 95% Non-Condensing				
Altitude	Up to 2000m A.M.S.L.(up to 3000m on request)				
Electrical AC Supply	Single phase 220Vac±15% or four wire three phase 380Vac ±15%, 50Hz ±2% with more than 90% power factor				
Automatic Power Control	The automatic power control circuitry provides the output power regulation with a stability of ±2% over the time and whole VHF frequency range and protects the system against open or short circuit, capable of withstanding a VSWR up to 1.5:1 at nominal power without power reduction, 1.5:1 up to 2.5:1 with appropriate power reduction and Automatic RF shutdown with five recycling times above 2.5:1				
Output Power Reduction	0 to -10dB				
Type of Modulation	DAB/DAB+				
External Inputs	1PPS and 10MHz Reference Frequency Input				
Crest Factor	13 dB Maximum				
MER	Better than 32 dB(typically 34 dB)				
Shoulder and harmonics Level	Better than -37 dBc(typically -40 dBc) before transmitter mask filter				
Local Control and Operation Interface	Status LEDs, Buttons and Touchscreen Display Unit				
Remote Control and Operation Interface	Web GUI over RJ-45 Ethernet Port, GSM modem and antenna(on request)				
Available Customized Models	FAHP-DAB Tx01	FAHP-DAB Tx02	FAHP-DAB Tx03	F FAHP-DAB Tx04	FAHP-DAB Tx05
Number of SSPAs	1	2	3	4	5
Digital Output Power	900 W	1.6 kW	2.5kW	3.4kW	4.3kW
Frequency Range	VHF Band III, 174 ~ 240 MHz (5A to 13F Channel)				
Channel Bandwidth	1.536 MHz				
Inputs	2 ETI Inputs, 2 EDI Gigabyte IP Inputs and a Satellite Input				
RF Output	7/16	1 5/8" EIA			3 1/8" EIA
Efficiency	25%				
Power Consumption	4KVA	8KVA	12KVA	16KVA	20KVA
Dimensions(H x W x D)	210cm x 60cm x 120 cm				
Number of Txs available per Rack	Up to 3	Up to 2	Just 1	Just 1	Just 1

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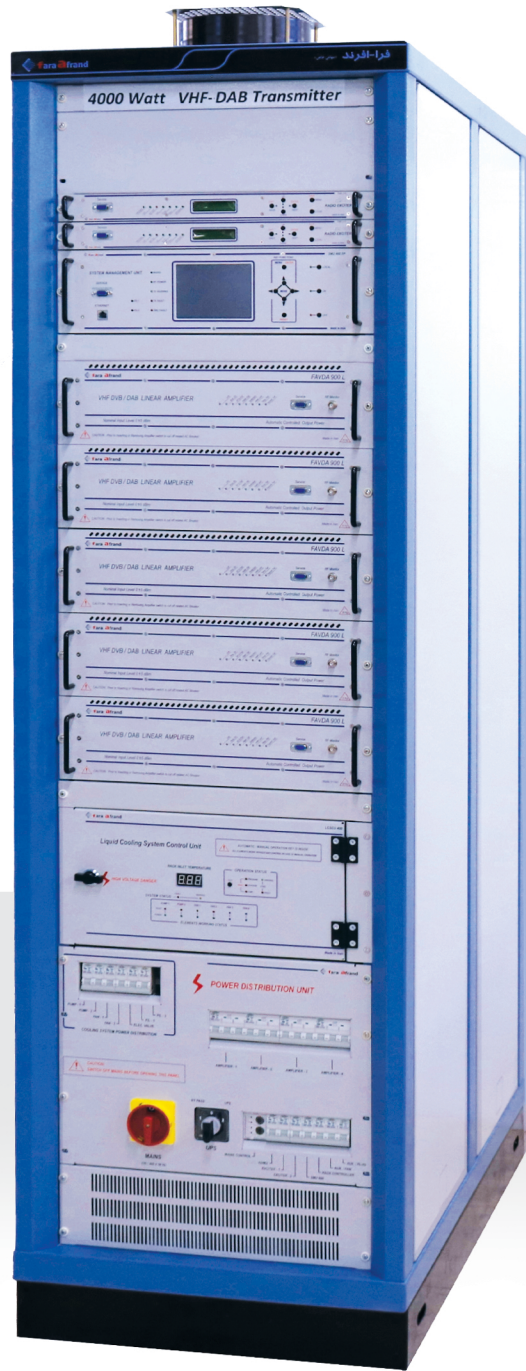
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Liquid Cooled VHF DAB Transmitter

FAHP-DAB Tx Family

High Quality, High Power Density, Compact Footprint

Key facts:

- Features superior quality, typically 34dB MER
- Delivers up to 4 kW output power per rack
- Performs fully redundant pump unit
- Reduces installation costs thanks to compact footprint
- Provides easy installation, service and low maintenance costs thanks to modular system design
- Could be configured as Single Drive or Dual Drive with Automatic Change Over Unit
- N+1 redundant system configuration is available
- Sourced from innovate fully hot-pluggable 1000 watt power amplifiers have been blended with built-in high efficiency power supplies
- Utilizes the latest generation of 50 V RF LDMOS technology
- Prepared very low loss, high quality Progressive Transmitter Power Combiner has been realized with small footprint built-in liquid cooled Absorber Load Unit
- Incorporates best in class DAB/DAB+ Exciter providing excellent on-air Audio quality with real time Adaptive Pre Correction
- Fully broadband 170 to 240 MHz without any requirement to trimming or part replacement thanks to innovate System Management Unit
- Provides full task system control and monitoring with user friendly GUIs (locally or remotely via a computer from anywhere in the world) thanks to its task oriented System Management Unit
- Proudly offers extreme robustness and low service costs due to innovate system design

Company at a glance

Fara-Afrand was founded in 1999 as an independent, privately owned company. Fara-Afrand puts science to work by manufacturing robust, reliable and innovate solutions for on-air broadcasting systems. Concentrating more than 18 years on broadcasting transmitters, makes Fara-Afrand to a reliable supplier, offers a wide variety range of innovative products and services for markets including broadcasting systems, communication systems, telecom, ISM and electronic solutions. Up to day more than 2K transmitter blocks of the company has been launched at many broadcasting stations, playing Digital and Analog Radios and Televisions in whole broadcasting frequencies from few MHz up to 1GHz with a few watts of power up to ten kilowatts.

FAHP-DAB Tx Family

FAHP-DAB Tx family is designed to meet high power requirements of the market in DAB/DAB+ Transmitters. Innovate and compact design of FAHP-DAB Tx family, offers a small footprint and high power density with ultra-high quality, such that all in one 4 kW transmitter is available within a 19 inch rack. Thanks to latest 50V LDMOS technology, FAHP-DAB Tx family prepares a robust, rugged and reliable solution for high power Digital Audio transmitters with dramatically reduced cost of ownership and maintenance of the transmitter.

FAVDA1K Solid State Power Amplifier

FAHP-DAB Tx family provides high power density, quality and reliability, due to its fully hot-pluggable power amplifier. FAVDA1K is a solid state power amplifier with built-in high efficiency power supplies. Thanks to its compact design and last generation high linearity 50 V RF LDMOS usage, 1000W DAB/DAB+ RF power could be achieved in a 3HU, 19 inch and 53cm box. Low loss RF power combiner and harmonics filter, agile amplifier control unit and appropriate RF driver amplifier, also have been housed in the amplifier box. Innovate and compact design of FAVDA1K, make it to a high quality small footprint SSPA that could be launched only with 1mw RF input signal to achieve more than 25% efficiency at 1000W DAB/DAB+ output power.

FADG4C Exciter

FAHP-DAB Tx family has been powered by the best in class FADG4C Exciter with excellent quality on-air performance. FADG4C supports all DAB/DAB+ broadcasting standards with superior quality Linear and Nonlinear Adaptive Pre Correction core with both standard ETI and EDI inputs and a Satellite input dedicated to receive DVB-S/S2 BIS signal and to demodulate an ETI signal source.

Fully Redundant Pump Unit

FAHP-DAB Tx family has been accomplished with a reliable cooling system has been housed inside the transmitter rack, however it could be implemented outside of the transmitter rack on the request. Utilizing cooling system with appropriate liquid sensors such as coolant temperature, pressure, level sensors, combined with use of a very agile and smart control unit make it to a very reliable system. Preparing the system with a spare pump block in the pump unit lets the control unit to drive the transmitter even with the main pump failure. Also, cooling system contains a thermostatic valve that has been controlled by the cooling control unit to gain better cooling efficiency in all temperature conditions. High quality, high efficiency Heat Exchanger with automatically temperature controlled fans, allows heat to pass away from the transmitter with the best in class thermal efficiency.

Low Loss Progressive RF Power Combiner

FAHP-DAB Tx family uses an extremely low loss, high quality RF power combiner with excellent phase and amplitude balance and isolation between combining ports. Thanks to progressive implementation of the combiner, combining system needs lower capacity absorber loads. Combining absorber loads also has been realized as built-in liquid cooled units, inside the transmitter rack.

Agile System Management Unit

FAHP-DAB Tx family uses an agile System Management Unit. Stand-Alone realization of the transmitter blocks such as power amplifiers, exciters, cooling unit and etc., makes the System Management Unit very agile and powerful such that each transmitter block executes the System Management Unit instructions, without any overhead have been applied to it. Each transmitter block transmits its real time status to the System Management Unit and receives and executes its task and part oriented instructions via robust protocols like CAN. System Management Unit prepares full task control and monitoring of the transmitter and all of its blocks with all of their detailed parameters, via a 7 inch touchscreen display and associated keypad combined with user friendly menus and GUIs for local operation. In the remote mode, prepared system Ethernet port is playing the role to establish a bridge connection to the transmitter via a computer from anywhere in the world. Also a GSM modem and antenna could be configured inside the System Management Unit to establish a connection over the GSM network, for full task control and monitoring of the transmitter.

