

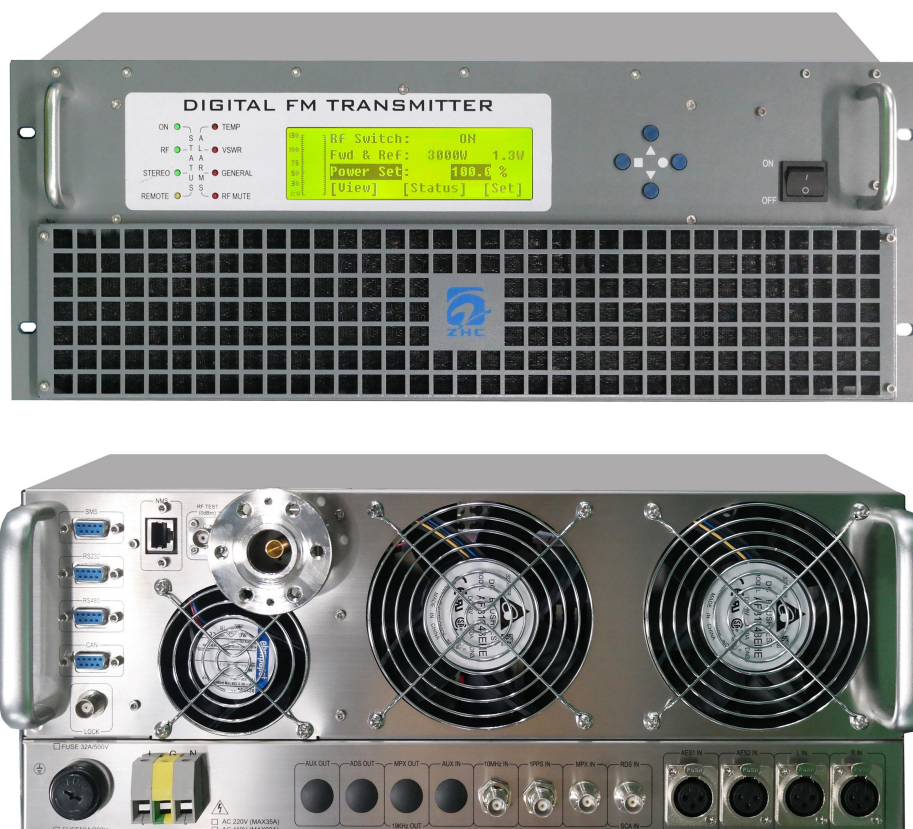
# ZHC618F-3000W Compact FM Stereo Transmitter

## 1. Overview

ZHC618F-3000W stereo FM radio transmitter is an integrated high-quality FM transmitter that **stereo-encodes** the input left and right channel **audio signals** and adjusts the **FM modulation** to the broadcast band, then **RF amplify** to the 3000W output power for wireless broadcasting. The transmitter adopts the most advanced software radio technology to achieve the international leading level of product performance indicators.

With a new large-scale field-programmable gate array (**FPGA**) and direct digital frequency synthesis (**DDS**) technology at up to **5G**, the product achieves the **highest technical specifications** in the industry to date, providing listeners with a **CD-like** sound experience.

The product consists of audio interface unit, digital processing and frequency modulation unit, RF power amplifier unit, human-machine interface unit, communication interface unit, clock synchronization unit and power supply unit. The transmitter is installed in a 19-inch 4U standard chassis, intensive design, small size and light weight. The whole transmitter is designed with high reliability, which makes the product run continuously and stably for a long time.

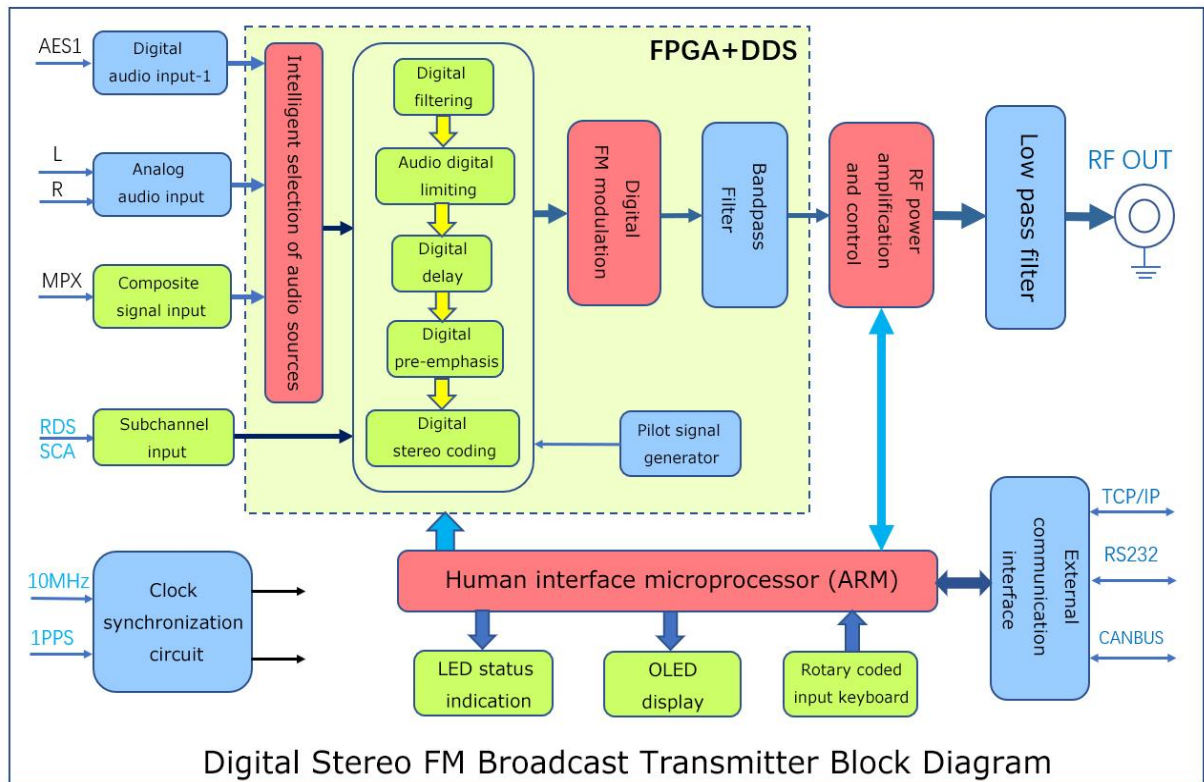


## 2. Technical characteristics and principle block diagram

Product technology has the following technical features:

- Full process digital processing to achieve a perfect auditory effect of **CD-like** sound quality
- Full-scale digital processing with large-scale field-programmable gate array (**FPGA**) technology
- Direct digital frequency synthesis (**DDS**) technology at speeds up to 5G to peak transmitter specifications
- High reliability microprocessor (**ARM**) technology as the primary controller
- Support for multiple audio source inputs (transmitters can be **automatically** selected by priority):
  - ◆ **AES/EBU** digital audio signal input (highest priority)
  - ◆ Analog stereo analog audio signal input (2nd priority)
  - ◆ **MPX** stereo composite signal input (3rd priority)
- Supports one **RDS** or **SCA** subcarrier input
- Upgradeable to FM **synchronous** broadcast transmitter
- Electronically controlled **AGC** controls output power zero drift
- Perfect over-current, over-voltage, over-temperature, over-power, standing wave ratio alarm and protection
- One-touch shuttle quick keyboard input
- Real-time display of operating parameters using **OLED**
- With **TCP/IP, RS232** communication interface
- 19-inch standard chassis, height 2U

## The Transmitter Block Diagram:



## 3. Technical specifications

### Electrical Specifications:

1. Frequency Range 87MHz~108MHz  
(other frequencies can be customized), stepping 10kHz
2. Carrier frequency tolerance  $\pm 200\text{Hz}$
3. Output power 0~3000W continuously adjustable
4. Output power tolerance  $\pm 1\text{dB}$
5. Output impedance  $50\Omega$
6. RF output connector 7/16" or 7/8"
7. Residual wave radiation  $< -70\text{dB}$
8. Parasitic amplitude modulation noise  $< -50\text{dB}$
9. Pilot frequency deviation  $\pm 0.1\text{Hz}$
10. 38KHz residual component in the S signal  $< -50\text{dB}$
11. 100% modulation frequency offset  $\pm 75\text{KHz}$   
(maximum modulation frequency offset 112.5KHz)
12. Audio pre-emphasis  $0\mu\text{s}/25\mu\text{s}/50\mu\text{s}/75\mu\text{s}$  optional
13. Signal-to-noise ratio  $\geq 92\text{dB}$  (1kHz, 100% modulation)
14. Stereo separation  $\geq 73\text{dB}$  (L  $\rightarrow$  R, R  $\rightarrow$  L)
15. Distortion  $\leq 0.01\%$  (30Hz ~ 15000Hz, 100% modulation)
16. Frequency response  $\pm 0.01\text{dB}$  (no emphasis, no de-emphasis);

	$\pm 0.05\text{dB}$ (emphasis, de-emphasis)
17. Left and right channel level difference	$\leq 0.01\text{dB}$ (100% modulation)
18. Analog audio input	-12dBm ~ +8dBm
19. Analog audio input impedance	600 $\Omega$ balance
20. AES input impedance	110 $\Omega$ balance
21. AES input level	0.2~10Vpp
22. AES sampling rate	30kHz ~ 96kHz
23. RDS input impedance	10k $\Omega$ unbalance
24. RDS input level	0dBm
25. MPX input impedance	10k $\Omega$ unbalanced
26. MPX input level	1.0Vpp
27. Input audio Level Gain	-15dB~+15dB Step 0.1dB
28. Heat dissipation method	Forced convection
29. Power supply voltage	100VAC~265VAC/ 47Hz~63Hz

**Physical Specifications:**

30. Chassis standard	19" inch
31. Chassis size	4U (680mm X 485mm X 176mm)
32. Total weight	55Kg (including packaging)
33. Operating environment temperature	-10 ° C ~ +45 ° C
34. Relative humidity	<95%
35. Altitude	<4500m