

Distribution Amplifier

FS730 and FS735 series — 10 MHz distribution amplifiers



FS730 & FS735 Series 10 MHz Distribution Amplifiers

- **Sine wave outputs (+13 dbm)**
- **Amplitude leveling**
- **Low additive phase noise**
- **High channel-to-channel isolation**
- **High return loss**

• **FS730 ... \$1250 (U.S. list)**

• **FS735 ... \$1950 (U.S. list)**

This distribution amplifier is intended to distribute a low noise 10 MHz frequency reference. The amplifier has one input and seven outputs, all on BNC connectors. The input is coupled through a series LC network allowing the use of inputs with a DC offset. The input source impedance is 50 Ω at 10 MHz.

The input is conditioned by a limiter. The limiter provides several advantages in this application; amplitude modulation is removed from the input signal, outputs have fixed amplitude, input noise that occurs more than 50 mV away from the zero-crossing is blocked, and virtually any waveform with a duty cycle near 50% may be used as an input.

The input limiter is followed by a bandpass filter and a fixed gain amplifier. This signal is passed to seven output amplifiers, each of which is followed by a low pass filter and an output transformer. All of the outputs have 50 Ω source impedance and provide a 1 Vrms (+13 dBm) sine wave into a 50 Ω load.

There are four indicator LEDs. The “power” LED indicates that the unit has AC power. The “signal” LED indicates that an input signal is present. The “overload” LED indicates that the input signal has excessive amplitude. The “fault” LED indicates one or more of these conditions: no input signal, excessive input signal, no output signal, or low internal DC power supply.

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Configuration

The FS73x series of products can be configured as half width, 1U size benchtop instruments (FS730) shown above, or in full-width mount size enclosures (FS735). When ordering the FS730 configuration, the ordering part number is FS730/1. If your application requires the FS735 enclosure, you will need to select any two from the following list of options.

10 MHz distribution amplifier

5 MHz distribution amplifier

CMOS logic distribution amplifier

Broadband 50 Ω distribution amplifier

Broadband 75 Ω distribution amplifier

FS735 shown above with one Broadband 50 Ω distribution amplifier and one 10 MHz distribution amplifier side by side.

Ordering Information

FS730	10 MHz distribution amplifier	\$1250
FS735	Full-width distribution amplifiers	\$1950

FS730 & FS735 Series Specifications

Input

Frequency	10 MHz, $\pm 1\%$
Level	0 dBm to +13 dBm (0.63 Vpp to 2.82 Vpp)
Waveform	Any with $\approx 50\%$ duty
Impedance	50 Ω , $\pm 5\%$ at 10 MHz
Coupling	Series LC (Open at DC)

Output

Waveform	Sine
THD	<1%
Level (50 Ω load)	+13 ± 1 dBm (1 VRMS, 2.82 VPP)
Level (high-Z load)	2 VRMS (5.6 VPP)
Impedance	50 Ω , $\pm 5\%$ at 10 MHz
Coupling	Transformer (Short at DC)
Bandwidth	± 1 MHz (-3 dB)
Spurious	< -120 dBc within 100 kHz
Isolation	> 100 dB (1)
Pulling	< 1 ps (1, 2)
TC of phase	≈ -5 ps/ $^{\circ}$ C

Additive phase noise

(with +7 dBm input)

Offset (Hz)	Noise (dBc/Hz)
1	-140
10	-145
100	-150
1k	-160
10k	-170
100k	-170

General

Power	10 W, 100/120/220/240 VAC, 50/60 Hz
Dimensions	8.3" \times 1.5" \times 8.0" (WHL)
Weight	1.5 lbs.
Warranty	One year parts and labor on defects in materials and workmanship

(1) Measured with 1 Vrms at 10.001 MHz from a 50 Ω source applied to an adjacent output. The isolation increases at frequencies far away from 10 MHz.

(2) The pulling is comparable to that caused by a reflected wave from an unterminated cable on an adjacent output.