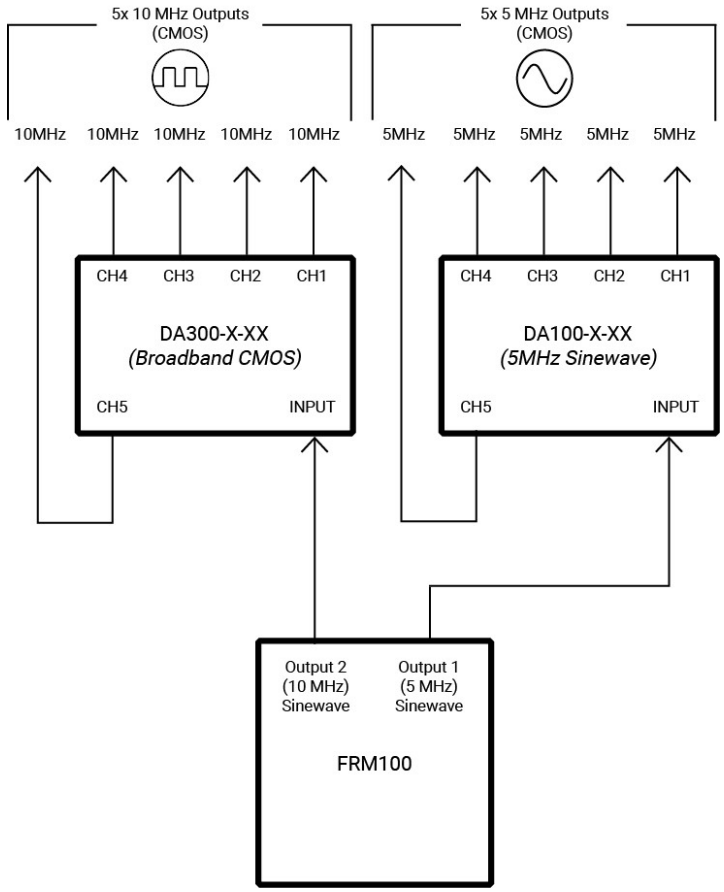
Esterline R&D: Application Note

TAILOR-MADE RF:

Customizing Your Signal Distribution Network

In our previous posts, we've explored the modular scalability of the FRM100 Frequency Reference Module paired with our DA-Series RF Distribution Amplifiers. But what if your system demands more flexibility—mixing waveforms, frequencies, or even integrating external RF sources?

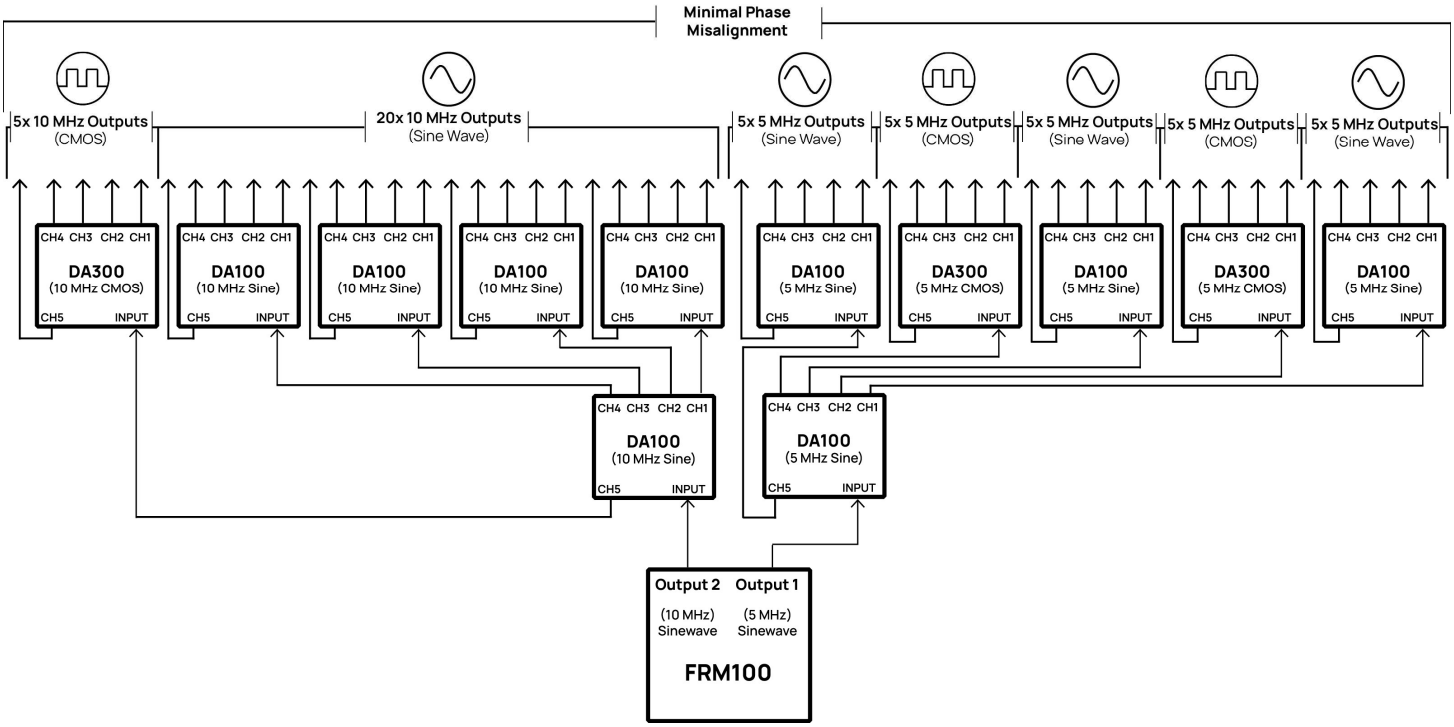
Mixed Waveform Outputs: Precision Customization



As we've touched on before, our modular DA-Series includes both sinewave (e.g., DA100, DA200) and CMOS (e.g., DA300, DA400) output variants. But what sets this system apart isn't just the ability to choose one or the other—it's the ability to mix and match them at the amplifier level, even within the same setup.

This level of granularity allows engineers to optimize performance at the output level without being locked into a single waveform type across the entire system.

To illustrate this customization in action, the diagram below shows a large-scale application where sinewave and CMOS amplifiers are mixed across a synchronized 5 MHz and 10 MHz distribution network. Each amplifier bank is configured to deliver the waveform and frequency needed at the output level—demonstrating how scalable, modular, and precise your system can be when you distribute your RF with ERD.



Versatility Beyond the FRM100

While our discussions have centered around pairing the FRM100 Frequency Reference Module with DA-Series amplifiers, the true strength of the DA-Series lies in their versatility. They can distribute virtually any external RF source within their specified frequency and amplitude range.

Examples:

- Rubidium or Cesium Atomic References
- GPS-Disciplined Oscillators (GPSDOs)
- Custom Frequency Generators

This flexibility empowers you to design systems that leverage existing infrastructure or specialized equipment while benefiting from Esterline Research and Design's modular scalability.

Know Your Specs: Recommendations & Considerations

While the DA-Series offers significant customization, it's important to adhere to amplifier specifications. Each amplifier is designed for specific frequency ranges and waveform types, ensuring optimal signal quality and amplifier performance. Always confirm your chosen amplifier matches your frequency and waveform requirements.

In addition to the DA100 and DA300, ERD offers DA200 (Low Phase Noise), DA400 (High Bandwidth CMOS), and DA500 (Broadband) distribution amplifiers, which can be integrated into a highly custom solution.

Achieve Your Ideal RF Distribution Setup

The DA-Series Distribution Amplifiers provide engineers unparalleled freedom to tailor their RF distribution systems exactly as needed to their particular situation, mixing frequencies, waveforms, and input sources seamlessly.

Interested in optimizing your custom RF distribution solution?

Reach out to our team for personalized guidance and expert recommendations.