

# RF Programmable Signal Processor System for Fuze Programming

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**Mixed Signal  
Integration**

Mixed Signal Integration

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# MSI's Signal Processor ICs for Fuzing Applications

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HDL304 for the 734A1 Fuze

HDL400 for fuzing 40mm

HDL401 for fuzing 30 mm

All developed for ARDEC

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# Introduction

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Electronic fuzing is moving to smaller cannon and even bullets.

- Design to program smaller munitions
- Need for fuze programming
- Proximity or Contact
  - Distance
    - for buried targets
    - hard targets
    - soft targets



# One Solution: RF Programming Benefits

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- Smaller Antenna
- Programming Speed
- Smaller Electronics



# One Solution: RF Programming

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# Comparison of RF to Magnetic

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- RF Options
  - Smaller Antenna
    - Higher Frequency allows smaller antennas
  - Distance programming: inches, not contact
  - Programming speed
    - High carrier frequency for higher data rates
  - Writer size
    - As with the receiver, transmitter is smaller



# RF Options

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- RF Options
  - Direct; stored for flight duration
  - Loaded to EE; for longer data storage



# Technical Issues

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- Getting the RF into the Bullet
- Programming Speed
- Antenna Size
  - Receiving enough RF energy in a short time
  - Forward acting antenna
- Unauthorized Programming
  - Can't program remotely; inches not feet
  - Encryption may be required for EEPROM
- Proving Safe and Arm not affected by RF





# Possible RF path: Writer to Cartridge

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# Summary

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Electronic fuzing is moving to smaller cannon and even bullets.

- Design to fit smaller munitions.
- RF approach provides smaller antennae, non-contact and faster programming.

