Nano Family (Nano and Nano Rugged)



Small Unmanned Vehicle Software Defined Radio

Features

- 2" W x 4L" x 0.5H" or (rugged)
- 4 ounces or 7 ounces(rugged)
- Freescale MX6 Quad-core processor
- H.264 Video Compression (optional)
- CSI-2 Digital Video Input
- Software Defined Radio
- Diversity Receive
- Conduction Cooled /Industrial Temperature
- Modular RF: 1.8—2.5 GHz, ISM, 5.04-5.08 GHz
- I/O: Ethernet x 2, USB, Serial x 2

Waveform

Point-to-Multipoint and Point to Point Network topologies supported

EDL Nano

- AES Encryption with 128 bit key (International); 256 bit key available (no latency)
- Doppler correction for ground-to-air and air-to-air operation.
- ACM at BPSK, QPSK, QAM16, QAM64, PSK8, and PSK16
- PMP and Mesh Waveforms
- Long Range Air/Ground Mode: GMSK
- QoS built into waveform.
- SCA Compatible architecture.
- Waveform supports distances to 250 miles.

Aeronix end-to-end SDR technology enables unprecedented Cyber security and network encryption capabilities not available in non-SDR radio solutions. Models are available for RF spectrum in the L, S, and C bands. Custom RF bands between 100 MHz -6 GHz are available for customer specific applications. The ability for direct USB device support is provided via industry standard USB connections and software driver support.



Secure, Resilient, IP Video, Data, and Voice Wireless Networks for Unmanned Vehicle, Dismount, and Vehicle Networking

The EDL-Nano Data Link is a conduction cooled small software defined radio (SDR) designed to provide on-the-move (OTM) seamless connectivity for IP data, video, and voice. Low latency, seamless Layer 2 Ethernet connectivity facilitates plug-and-play, creation of networks of computer tablets, cameras, sensors.





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Networking	
Waveforms	Tactical 802.16, DO-362, GSM High Multipath: Modulations Supported: BPSK, QPSK, QAM16, QAM64, 8PSK, 16PSK Long Range Mode: GMSK Spread 4, Spread 16
Network Point-to- Multipoint	Point-to-Multipoint with multiple subscribers
Network Point-to-Point	High-performance mode with reduced overhead. User configured mode via GUI.
Uplink / Down Link Ratio	Ratio is user configurable via GUI slide bar. Max = 80%, Min = 20% of aggregate throughout. Fixed for DO-362
Network Routing	Routing configuration via automatic setup modes and user configuration
IP Support	IPv4 and IPv6
Operating System	Linux general purpose processor operating system
User Data Rate (Mbps)	Maximum user data rate of 37.8 Mbps in a 14 MHz channel

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Management Features			
Remote	Radios can be configured remotely over the		
Management	network via USER login via GUI or via SNMPv3		
User Interface	Web Based GUI - USB OTG 2.0 - Ethernet - SNMPv3		
Software	Radios can be configured via GUI selection as		
Selectable BS /SS	either a base-station or subscriber-station.		

Security	
Encryption	AES128 Cover - International Commercial AES256
	Domestic Covers management information and data.
	Con-figured on/off via user GUI.
Pedigree	U.S. design and manufacture
FIPS 140-2	Future



Radio Specifications	
RF Freq.	1.8 –2.4 GHz, ISM, 5.04-5.08 GHz
Channels Supported	(User Configured via GUI)
Channel BW	85 kHz, 3.5. 7.0 14.0 MHz (HW supports 57 MHZ)
Channel Tuning Steps	Configured in 1 MHz steps via GUI
RF Output Power	OFDM: 1W Average at BPSK (2W preamble); GMSK 3-4W Average,
Noise Figure	~3-4 dB

Connector Interfaces			
High Speed I/O	Ethernet x 2, USB		
Network I/O			
DC Power	8v to 18v		
Low Speed I/O	RS232 x 2		
Tx/Rx I/O	Supports external switching amplifiers if		
	more power is desired.		
Video I/O	CSI-2 Digital Video Input		
RF I/O	Double RF SMA antenna interfaces		

Physical C	haracteristics
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Size	2" W x 4" L x 0.5"H (4 cubic inch) 2.45"W x 4.5"L x 0.93"H (rugged)
Weight	~ 3.4oz, 7 ounces (rugged)
Power	8 - 14 Watts

Envi	ronm	on	tal	
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An ATG Company

Temp	-40 to 60C, cold plate
Shock	50g
Chassis	Unsealed
Cooling	Conduction

Demonstrated User Data Rates

BPSK 1/2@ 3.5MHz	1.0 Mbps	BPSK 1/2 @ 7MHz	2.0 Mbps
QPSK 1/2 @ 3.5 MHz	2.1 Mbps	QPSK 1/2 @ 7 MHz	3.9 Mbps
QPSK 3/4 @ 7 MHz	5.8 Mbps	QAM16 3/4 @3.5 MHz	6.5 Mbps
QAM16 3/4 @7MHz	11.8 Mbps	QAM64 2/3 @7MHz	17.6 Mbps
QAM64 3/4 @14 MHz	37.9 Mbps	GMSK FEC 1/2	3.6 Mbps
GMS	SK FEC 3/4	5.4 Mbps	



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