

nanoTX™ and nanoPuck™ Telemetry Transmitters



Small Wonder

Starting at a mere 1.4 cubic inches, our nanoTx™ and nanoPuck™ transmitters support the smallest of airborne platforms with programmable multi-mode operation and up to 10 Watts of RF output. The smallest ARTM transmitters now available, Quasonix nano transmitters are ideal for applications with strict SWaP constraints. **Quasonix is... *Reinventing Telemetry®*.**

Industry Leader in Transmitter Technology — Proven quality and performance, with over 20,000 transmitters shipped and another 200+ added monthly.

Advanced Engineering — nanoTX and nanoPuck fourth-generation transmitters have a faster processor, improved frequency stability, and support for all six LDPC codes. LDPC forward error correction mode improves link margin, nearly tripling the operating distance of your telemetry link. Adopted by the Range Commander's Council, IRIG 106-17, Appendix 2-D.

Exceptional DC-to-RF Conversion Efficiency — Facilitates replacement of older 10 W transmitter with new 20 W transmitter at same current draw.

Output Power from 10 mW to 10 W — Far and away the most powerful transmitter in its size class. Achieve up to 10 watts of output in the industry's smallest transmitters. Several RF

output choices, along with variable power and dual power options for software- or hardware-based power adjustment.

Automatic Data Rate Tracking — Premod filtering and deviation automatically track the data rate, with no programming or configuration required.

Clock-Free Input Option Available — Ideal for replacing analog transmitters or for use with encoders or cryptos that provide a data output only.

Perfect for Your Mission — With broad frequency, power, and modulation capabilities—plus dozens of options—Quasonix has the right transmitter for you.

nanoTX Transmitter Specifications

Performance				
Modulation type	PCM/FM (ARTM Tier 0), SOQPSK-TG (ARTM Tier I), Multi-h CPM (ARTM Tier II), BPSK, QPSK, OQPSK, UQPSK			
Carrier frequency tuning range	Lower S band		Upper S band	
All nanoTX models	2200.5 - 2300.5 MHz		2300.5 - 2394.5 MHz	
RF output power	nanoTX and nanoPuck: 1 W, 2 W, 5 W, and 10 W Option DP: Dual power, 64 settings, user selects one for “high” and one for “low”, chosen via baseband connector pin Option VP: Variable power, 64 settings approximately 0.5 dB apart			
Carrier frequency tuning increment	0.5 MHz			
Carrier frequency accuracy	± 2.0 ppm over temperature ± 6.0 ppm, all causes, including aging over 5 years			
Data (bit) rate, automatic rate adaptation	nanoTX, nanoPuck: 0.1-28 Mbps (0.05-14 Mbps for PCM/FM) nanoTX option HR: Extends upper limit to max of 46 Mbps (23 Mbps for PCM/FM) nanoTX option LR: Extends lower limit to min of 50 kbps (25 kbps for PCM/FM)			
Input voltage	nanoTX, nanoPuck: +28 ± 4 VDC Standard nanoTX, nanoPuck with optional wide voltage (WV option): +8.0 to +34 VDC for 1 Watt models +8.0 to +34 VDC for 2 Watt models +12 to +34 VDC for 5 Watt models +21 to +34 VDC for 10 Watt models (nanoTX)			
Input current @ +28 VDC	nanoTX, nanoPuck	1 Watt	450 mA max;	350 mA typical
	nanoTX, nanoPuck	2 Watt	530 mA max;	400 mA typical
	nanoTX, nanoPuck	5 Watt	1.0 A max;	800 mA typical
	nanoTX	10 Watt	1.2 A max;	1.1 A typical
Power reversal	Reverse voltage protection			
Control interface	1 - LVTTTL serial control interface (nanoPuck) 2 - RS-232 serial control interface (nanoTX)			
Signal interfaces	H - TTL 10k ohms to ground T - TTL 75 ohms to ground R - TIA/EIA-422 (RS-422) - 120 ohms differential B - TIA/EIA-422 (RS-422) - 120 ohms differential, even when unit powered off			
Randomizer	15-stage LFSR, per IRIG 106. Selectable for bypass or enable			

Environmental	
Operating temperature	-40°C to +85°C (all models)
Storage temperature	-55°C to +100°C (all models)
Operating humidity	0 to 95% (non-condensing)
Altitude	Unlimited

Physical

Dimensions	nanoTX 01Ax packages: 1.40 in ³ , 1.25" (W) x 3.40" (L) x 0.33" (H) nanoPuck 01Px packages: 2.30" (Dia) x 0.33" (H)
Vibration (see below)	19.6 G (RMS) random, 20 Hz to 2,000 Hz, 3 axes
Shock (see below)	60 G (PK), 1/2 sine, 5 ms duration, 3 axes
Acceleration	100 G, 3 axes
Connector - RF	nanoTX (all packages): Female MMCX nanoPuck (all packages): Female MMCX
Connector – Baseband / Primary	nanoTX 01Ax package: Female 15 Pin or 21 pin nano nanoPuck 01Px package: SAMTEC FTSH-108-04-F-D

Note on Vibration and Shock Specifications

Quasonix transmitters are designed and tested to operate normally when subjected to random vibration and shock. The shock and vibrate test setup employed by Quasonix during flight qualification is represented in the specs above. Production testing is done in the Z-axis only, for five (5) minutes. Shock testing is not performed as part of production test. Contact Quasonix for a quote for custom vibration tests and/or vibration reports.

Note on Materials and Regulated Substances

Quasonix transmitters are manufactured using standard electronic materials appropriate for high-reliability RF systems. The only intentionally present substance commonly classified as hazardous under international regulatory frameworks is lead, contained in the lead-based solder used in assembly to ensure long-term mechanical and electrical reliability in mission-critical applications.

nanoTX Optional Features

AC:	Automatic Carrier Wave Output	ID:	Internal Clock and Data can be saved as a power-up default
BRx:	Baud Rate	LD:	Forward Error Correction / Low-Density Parity Check
C7:	Quasonix interpretation of IRIG 106-17 Appendix 2-C serial control protocol	LD6:	Extended Low-Density Parity Check (LDPC)
CE:	Convolutional Encoder (k=7 rate 1/2)	LR:	Low Bit Rate - Decreases default min bit rate to 50 kbps (25 kbps for Tier 0)
CF:	Clock-free Baseband Interface	MS:	Modulation Scaling
DP:	Dual Power, 64 settings, user selects one for "high" and one for "low", chosen via baseband connector pin	PS:	Hardware Preset (PS2, PS4, PS8, or PS16)
FO:	Frequency Offset	VF:	Variable FIFO Depth controls transmitter latency
GN:	GPS Notch (lowers noise at L1 and L2)	VP:	Variable power (31 settings, spanning 24 dB)
HR:	High Bit Rate - Increases default max bit rate to 46 Mbps (23 Mbps for Tier 0)	WV:	Wide input voltage range

nanoTX Accessories



Bench Heat Sink (P/N: QSX-AC-32-HS-12V)

Heat sink with fan for TIMTER and nanoTX models. Includes power supply for North American operation and manual speed control.



MMCX to SMA Adapter Cable (P/N: QSX-AC-MMCX-SMA-R-R-34)

RF connection for your nano transmitter. RG-316 coaxial cable with right-angle MMCX and SMA connectors. Length 34 cm (13.4 inches).



21-Pin Nano-D RS-422 Pigtails (P/N: QSX-AC-NANO21-36PT)

RF connection for your nano transmitter. RG-316 coaxial cable with right-angle MMCX and SMA connectors. Length 34 cm (13.4 inches).

Also available for 15-Pin Nano-D RS-422 (P/N: QSX-AC-NANO15-36PT)

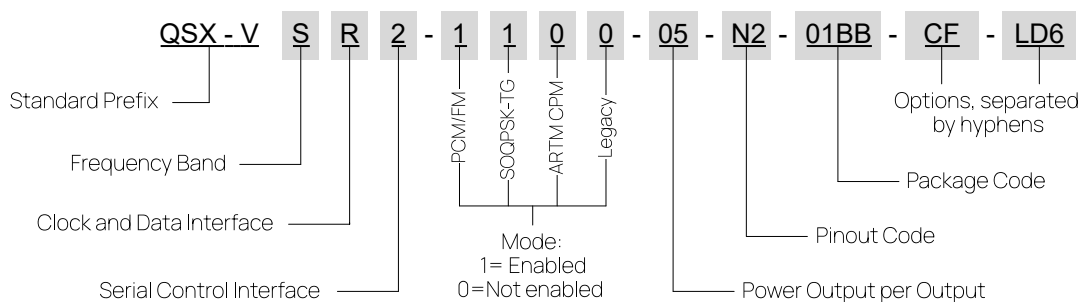


21-Pin Nano-D RS-422 Wiring Harness (P/N: QSX-AC-NANO21-HARNESS)

Connect your 21-pin nano transmitter with RS-422 clock and data baseband. This wiring harness includes banana plugs for power and ground, BNC connectors for clock and data, and a DB-9 connector for serial control. It is 33 to 36 inches long, depending on the connectors.

Also available for 15-Pin Nano-D RS-422 (P/N: QSX-AC-NANO15-HARNESS)

nanoTX and nanoPuck Part Numbering Example



Quasonix

All Quasonix products are under U.S. Dept. of Commerce jurisdiction. Transmitters are categorized as EAR99.
ISO 9001:2015 Certified | Specifications subject to change without notice.

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