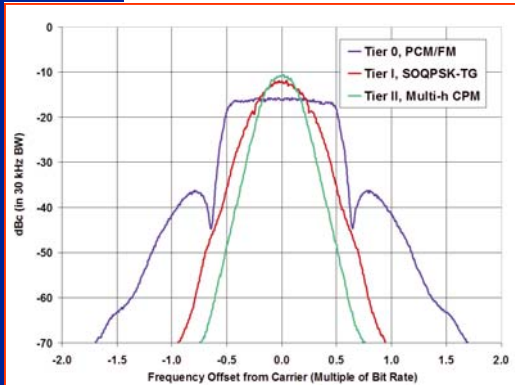


MULTI-MODE TELEMETRY TRANSMITTERS



TIMTER™



Rack-Mount TIMTER™ Transmitter



nanoTX™

- Industry Leader in Transmitter Technology**
Providing proven quality and performance in over 3500 transmitters shipped, TIMTER™ transmitters combine compact designs with outstanding size to power ratios, plus seamless integration and flexibility.
- 4th Generation C-band TIMTER™**
C-band is now offered in our 2.0 in³ and 1.3 in³ packages. At less than 0.35 inches tall, the C-band TIMTER™ can serve as a drop-in replacement for common 0.8 inch-tall transmitters
- Exceptional DC-to-RF Conversion Efficiency**
Facilitates replacement of older 10 W transmitter with new 20 W transmitter at same current draw
- L/C Band TIMTER™**
Single transmitter configuration covering a frequency tuning range spanning L and C bands
- S/C Band TIMTER™**
With output power up to 20 W, this configuration has a carrier frequency tuning range spanning S and C bands
- L/S Band TIMTER™**
Highly flexible solution available with all three legacy TM bands: lower L, upper L, and full S
- L/S/C Band TIMTER™**
Ultimate solution with lower L, upper L, full S, and full C bands
- Rack-Mount Transmitter**
Up to six TIMTER™ transmitters with separate clock, data, and RF ports in a 1U chassis; Operation via serial interface or Ethernet-based Remote Terminal Window; AC or DC powered
- Output Power from 10 mW to 25 W**
Several RF output choices, along with variable power and dual power options for software or hardware based power adjustment
- Smallest ARTM Transmitter**
1.3 in³ nanoTX™ transmitter ideal for airborne applications with strict SWAP constraints; Available in S band
- 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



TIMTER™ TRANSMITTER SPECIFICATIONS

Characteristic	Specification
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Main Section

Modulation type	PCM/FM (ARTM Tier 0), SOQPSK-TG (ARTM Tier I), Multi-h CPM (ARTM Tier II), BPSK, QPSK, OQPSK, UQPSK, STC
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<p>Carrier frequency tuning range</p> <p>(All frequency bands may be tuned 0.5 MHz above or below the stated frequency.)</p> <p>Note: Currently the MA option enables below Lower S band frequencies (2025.0 MHz to 2110.0 MHz) for use in Space operations and Space research. For additional information about this option or about specific frequency bands, contact Quasonix.</p> <p>*Custom frequency ranges are available. Contact Quasonix for details.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th>Band ID Code</th> <th>Lower L band 1435.5-1534.5 MHz</th> <th>Upper L band 1750.0-1855.0 MHz</th> <th>Lower S band 2200.5-2300.5 MHz</th> <th>Upper S band 2300.5-2394.5 MHz</th> <th>C band 4400.0-4950.0 MHz</th> <th>Mid C band 5091.0-5150.0 MHz</th> <th>Euro Mid C band 5150.0 - 5250.0 MHz</th> <th>Max Power</th> </tr> </thead> <tbody> <tr><td>A</td><td></td><td></td><td>x</td><td></td><td></td><td></td><td></td><td>25 W</td></tr> <tr><td>B</td><td></td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td>20 W</td></tr> <tr><td>C</td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>20 W</td></tr> <tr><td>D</td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td></td><td>20 W</td></tr> <tr><td>E</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>10 W</td></tr> <tr><td>F</td><td></td><td></td><td>x</td><td>x</td><td>x</td><td></td><td></td><td>20 W</td></tr> <tr><td>G</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td>20 W</td></tr> <tr><td>H</td><td>x</td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>10 W</td></tr> <tr><td>J</td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td>x</td><td>18 W</td></tr> <tr><td>K</td><td></td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>18 W</td></tr> <tr><td>L</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td>20 W</td></tr> <tr><td>M</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td>20 W</td></tr> <tr><td>N</td><td></td><td></td><td></td><td>x</td><td></td><td></td><td></td><td>25 W</td></tr> <tr><td>Q</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td>10 W</td></tr> <tr><td>S</td><td></td><td></td><td>x</td><td>x</td><td></td><td></td><td></td><td>25 W</td></tr> <tr><td>T</td><td>x</td><td></td><td></td><td></td><td>x</td><td>x</td><td></td><td>20 W</td></tr> <tr><td>V</td><td></td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td>20 W</td></tr> <tr><td>W</td><td></td><td></td><td>x</td><td>x</td><td></td><td>x</td><td>x</td><td>18 W</td></tr> <tr><td>X</td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td>20 W</td></tr> <tr><td>Y</td><td>x</td><td>x</td><td></td><td></td><td>x</td><td>x</td><td></td><td>20 W</td></tr> <tr><td>Z</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td>x</td><td>20 W</td></tr> </tbody> </table>	Band ID Code	Lower L band 1435.5-1534.5 MHz	Upper L band 1750.0-1855.0 MHz	Lower S band 2200.5-2300.5 MHz	Upper S band 2300.5-2394.5 MHz	C band 4400.0-4950.0 MHz	Mid C band 5091.0-5150.0 MHz	Euro Mid C band 5150.0 - 5250.0 MHz	Max Power	A			x					25 W	B						x	x	20 W	C					x			20 W	D					x	x		20 W	E	x	x	x	x	x	x	x	10 W	F			x	x	x			20 W	G							x	20 W	H	x				x			10 W	J					x	x	x	18 W	K			x	x	x	x	x	18 W	L	x							20 W	M	x	x	x	x				20 W	N				x				25 W	Q	x	x	x	x	x	x		10 W	S			x	x				25 W	T	x				x	x		20 W	V			x	x	x	x		20 W	W			x	x		x	x	18 W	X						x		20 W	Y	x	x			x	x		20 W	Z	x						x	20 W
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RF output power	<p>TIMTER L, S, C, L/S, L/C and S/C bands: 10 mW, 20 mW, 1 W, 5 W, 10 W, 20 W</p> <p>TIMTER S band: 10 mW, 20 mW, 1 W, 5 W, 10 W, 20 W, 25 W</p> <p>TIMTER L/S/C band: 10 mW, 20 mW</p> <p><i>Option DP:</i> Dual power, 64 settings, user selects one for "high" and one for "low", chosen via baseband connector pin</p> <p><i>Option VP:</i> Variable power, 64 settings approximately 0.5 dB apart;</p> <p>Packages of 2 cubic inches or less: 32 settings approximately 1.0 dB apart</p>
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Data (bit) rate, automatic rate adaptation	<p>TIMTER: 0.1-28 Mbps (0.05-14 Mbps for PCM/FM)</p> <p>TIMTER <i>option</i> HR: Extends upper limit to max of 46 Mbps for SOQPSK and ARTM CPM (23 Mbps for PCM/FM)</p> <p>TIMTER <i>option</i> LR: Extends lower limit to min of 50 kbps for SOQPSK and ARTM CPM (25 kbps for PCM/FM)</p>																																																															
Clock Free Data (bit) rate	<p>With BR x command: Allows user to enter a fixed bit rate in the range defined in the Data (bit) rate specifications above</p> <p>With BR A command: Automatically detects bit rate in the range defined in the Data (bit) rate specifications above; Quasonix guarantees automatic bit rate operation up to 35 Mbps; beyond that operation is dependent on input data signal quality (jitter, truly random data, etc.)</p>																																																															
Input current @ +28 VDC	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td>TIMTER L or S band, 10 mWatt</td><td>0.30 A max.</td><td>0.25 A typical</td></tr> <tr><td>TIMTER L or S band, 20 mWatt</td><td>0.35 A max.</td><td>0.30 A typical</td></tr> <tr><td>TIMTER L or S band, 5 Watt</td><td>0.8 A max.</td><td>0.7 A typical</td></tr> <tr><td>TIMTER L or S band, 10 Watt (2in³ packages)</td><td>1.4 A max.</td><td>1.1 A typical</td></tr> <tr><td>TIMTER L or S band, 10 Watt (>2in³ packages)</td><td>1.8 A max.</td><td>1.5 A typical</td></tr> <tr><td>TIMTER L or S band, 20 Watt</td><td>2.8 A max.</td><td>2.5 A typical</td></tr> <tr><td>TIMTER L/S band, 5 Watt</td><td>1.2 A max.</td><td>1.0 A typical</td></tr> <tr><td>TIMTER L/S band, 10 Watt</td><td>2.2 A max.</td><td>1.8 A typical</td></tr> <tr><td>TIMTER L/S band, 20 Watt</td><td>3.0 A max.</td><td>2.7 A typical</td></tr> <tr><td>TIMTER S band, 25 Watt</td><td>3.2 A max.</td><td>2.9 A typical</td></tr> <tr><td>TIMTER C band, 10 mWatt</td><td>0.30 A max.</td><td>0.25 A typical</td></tr> <tr><td>TIMTER C band, 20 mWatt</td><td>0.35 A max.</td><td>0.30 A typical</td></tr> <tr><td>TIMTER C band, 5 Watt</td><td>1.5 A max.</td><td>1.3 A typical</td></tr> <tr><td>TIMTER C band, 10 Watt</td><td>2.4 A max.</td><td>1.9 A typical</td></tr> <tr><td>TIMTER C band, 20 Watt</td><td>3.4 A max.</td><td>3.0 A typical</td></tr> <tr><td>TIMTER L/C band and S/C band, 10 mWatt</td><td>0.30 A max.</td><td>0.25 A typical</td></tr> <tr><td>TIMTER L/C band and S/C band, 20 mWatt</td><td>0.40 A max.</td><td>0.35 A typical</td></tr> <tr><td>TIMTER L/C band and S/C band, 10 Watt</td><td>2.0 A max.</td><td>1.8 A typical</td></tr> <tr><td>TIMTER L/C band and S/C band, 20 Watt</td><td>3.5 A max.</td><td>3.2 A typical</td></tr> <tr><td>TIMTER L/S/C band, 10 mWatt</td><td>0.40 A max.</td><td>0.45 A typical</td></tr> <tr><td>TIMTER L/S/C band, 20 mWatt</td><td>0.45 A max.</td><td>0.50 A typical</td></tr> </tbody> </table>	TIMTER L or S band, 10 mWatt	0.30 A max.	0.25 A typical	TIMTER L or S band, 20 mWatt	0.35 A max.	0.30 A typical	TIMTER L or S band, 5 Watt	0.8 A max.	0.7 A typical	TIMTER L or S band, 10 Watt (2in ³ packages)	1.4 A max.	1.1 A typical	TIMTER L or S band, 10 Watt (>2in ³ packages)	1.8 A max.	1.5 A typical	TIMTER L or S band, 20 Watt	2.8 A max.	2.5 A typical	TIMTER L/S band, 5 Watt	1.2 A max.	1.0 A typical	TIMTER L/S band, 10 Watt	2.2 A max.	1.8 A typical	TIMTER L/S band, 20 Watt	3.0 A max.	2.7 A typical	TIMTER S band, 25 Watt	3.2 A max.	2.9 A typical	TIMTER C band, 10 mWatt	0.30 A max.	0.25 A typical	TIMTER C band, 20 mWatt	0.35 A max.	0.30 A typical	TIMTER C band, 5 Watt	1.5 A max.	1.3 A typical	TIMTER C band, 10 Watt	2.4 A max.	1.9 A typical	TIMTER C band, 20 Watt	3.4 A max.	3.0 A typical	TIMTER L/C band and S/C band, 10 mWatt	0.30 A max.	0.25 A typical	TIMTER L/C band and S/C band, 20 mWatt	0.40 A max.	0.35 A typical	TIMTER L/C band and S/C band, 10 Watt	2.0 A max.	1.8 A typical	TIMTER L/C band and S/C band, 20 Watt	3.5 A max.	3.2 A typical	TIMTER L/S/C band, 10 mWatt	0.40 A max.	0.45 A typical	TIMTER L/S/C band, 20 mWatt	0.45 A max.	0.50 A typical
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Input voltage	<p>Standard: +28 ± 4 VDC</p> <p>With optional wide voltage (WV option):</p> <ul style="list-style-type: none"> +6.5 to +34 VDC for 10 mW, 20 mW, 1 W, 2 W models +12 to +34 VDC for 5 W model +21 to +34 VDC for 10 W, 20 W, and 25 W models <p>Note: The WV option is not supported on 25 W S band and 20 W L/C or S/C band transmitters.</p>																																																															
Power reversal	Reverse voltage protection																																																															

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TIMTER™ TRANSMITTER SPECIFICATIONS

Characteristic	Specification																																																
Serial Control interface	1 - LVTTTL serial control interface: 57,600 baud rate 2 - RS-232 serial control interface: 57,600 baud rate T - TTL serial control interface: 57,600 baud rate 4 - RS-422 serial control interface: 57,600 baud rate D - Dual-mode, software selectable between RS-232 or RS-422; 57,600 baud rate																																																
Clock and Data signal interfaces (Serial data with separate synchronous clock) (Input impedances are only specified when unit is powered On, unless explicitly stated as being valid in the Off state.)	H - TTL (10K ohms to ground) T - TTL (75 ohms to ground) A - TTL selectable between 75 ohms to GND and 10k ohms to GND R - TIA/EIA-422 (RS-422) - 120 ohms differential B - TIA/EIA-422 (RS-422) - 120 ohms differential, even when unit powered off M - Dual mode selectable (TTL terminated 10k ohms to GND, RS-422 term 120 ohms diff.) D - Dual mode selectable (TTL terminated 75 ohms to GND, RS-422 term 120 ohms diff.) S - Tri-mode selectable (TTL term 75 ohms to GND, TTL term 10k ohms to GND, and RS-422 term 120 ohms differential) L - LVDS (Low Voltage Differential Signal)																																																
Carrier frequency tuning increment	0.5 MHz																																																
Carrier frequency accuracy	± 1.0 ppm over temperature ± 6.0 ppm, all causes, including aging over 5 years																																																
Randomizer	15-stage LFSR, per IRIG 106. Selectable for bypass or enable																																																
Environmental Section																																																	
Operating temperature	-40°C to +85°C (10 mW, 1 W, 5 W, 10 W models) -40°C to +70°C (20 W and 25 W models)																																																
Non-operating temperature	-55°C to +100°C (all models)																																																
Operating humidity	0 to 95% (non-condensing)																																																
Altitude	Up to 100,000 ft.																																																
Physical Section																																																	
Dimensions	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>TIMTER™ Package</th> <th>Volume</th> <th>Width</th> <th>Length</th> <th>Height</th> </tr> </thead> <tbody> <tr> <td>02XX</td> <td>1.992 in³</td> <td>2.000"</td> <td>3.000"</td> <td>0.332"</td> </tr> <tr> <td>04XX</td> <td>4.200 in³</td> <td>2.000"</td> <td>3.000"</td> <td>0.700"</td> </tr> <tr> <td>05XX</td> <td>4.800 in³</td> <td>2.000"</td> <td>3.000"</td> <td>0.800"</td> </tr> <tr> <td>06XX</td> <td>6.072 in³</td> <td>2.000"</td> <td>3.000"</td> <td>1.012"</td> </tr> <tr> <td rowspan="2">07XX</td> <td>6.546 in³</td> <td>2.000"</td> <td>3.000"</td> <td>1.091"</td> </tr> <tr> <td>6.672 in³</td> <td>2.000"</td> <td>3.000"</td> <td>1.112"</td> </tr> <tr> <td rowspan="2">08XX</td> <td>7.590 in³</td> <td>2.200"</td> <td>3.450"</td> <td>1.000"</td> </tr> <tr> <td>8.418 in³</td> <td>2.000"</td> <td>3.450"</td> <td>1.403"</td> </tr> <tr> <td>09XX</td> <td>9.180 in³</td> <td>2.000"</td> <td>3.000"</td> <td>1.530"</td> </tr> </tbody> </table>	TIMTER™ Package	Volume	Width	Length	Height	02XX	1.992 in ³	2.000"	3.000"	0.332"	04XX	4.200 in ³	2.000"	3.000"	0.700"	05XX	4.800 in ³	2.000"	3.000"	0.800"	06XX	6.072 in ³	2.000"	3.000"	1.012"	07XX	6.546 in ³	2.000"	3.000"	1.091"	6.672 in ³	2.000"	3.000"	1.112"	08XX	7.590 in ³	2.200"	3.450"	1.000"	8.418 in ³	2.000"	3.450"	1.403"	09XX	9.180 in ³	2.000"	3.000"	1.530"
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Vibration	19.6 G (RMS) random, 20 Hz to 2,000 Hz, 3 axes																																																
Shock	60 G (PK), 1/2 sine, 5 ms duration, 3 axes																																																
Acceleration	100 G, 3 axes																																																
Connector - RF	All TIMTER: SMA female																																																
Connector – Baseband / Primary	TIMTER: MDM-15 (male or female)																																																

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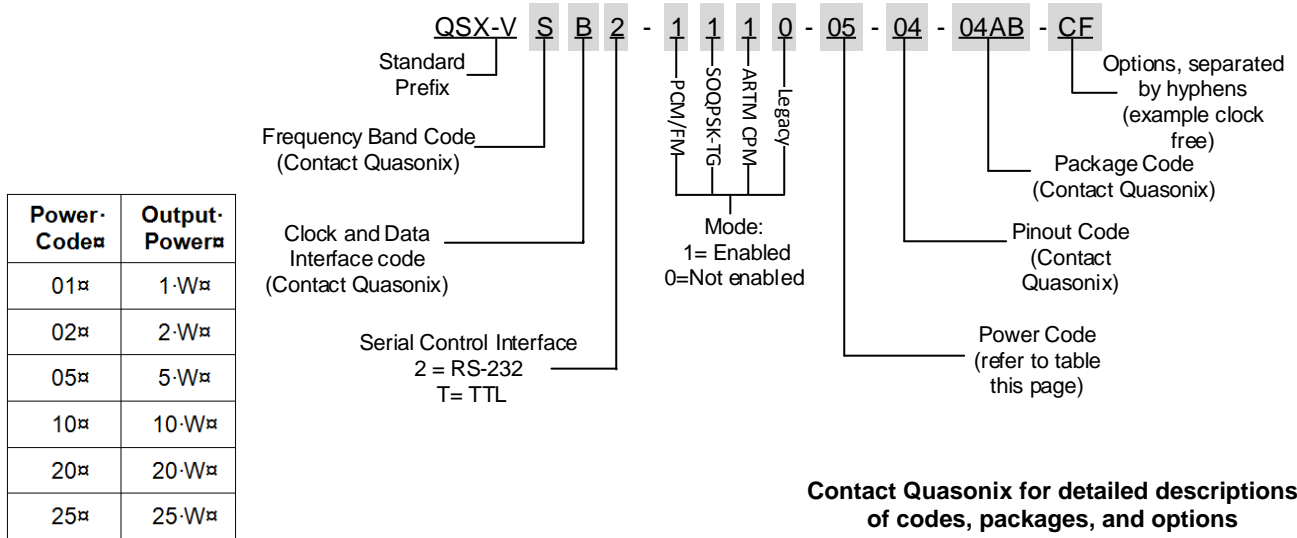


nanoTX™ TRANSMITTER SPECIFICATIONS

Characteristic	Specification
<i>Physical Section</i>	
Dimensions	nanoTX 01Ax packages: 1.275 in ³ , 1.250" (W) x 3.400" (L) x 0.300" (H) nanoPuck 01Px packages: 1.280 in ³ , 2.300" (Dia) x 0.325" (H)
Vibration	19.6 G (RMS) random, 20 Hz to 2,000 Hz, 3 axes
Shock	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

TIMTER™, nanoTX™, and nanoPuck™ PART NUMBERING

Transmitter Part Numbering Example



Contact Quasonix for detailed descriptions of codes, packages, and options

SAMPLE nanoTX™ PACKAGES



nanoTX 01Ax



nanoPuck 01Px

TIMTER™ OPTIONAL FEATURES

- | | | | |
|-------|-----------------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------|
| > AC | Automatic Carrier Wave Output | > LD | Forward Error Correction / Low Density Parity Check |
| > AI | Auxiliary Input for digital data that is already premod filtered | > LR | Low Bit Rate - Decreases default min bit rate to 50 kbps (25 kbps for Tier 0) |
| > AP | Adapter Plate (hardware accessory) | > MA | Below Lower S band, 2025.0 MHz to 2110.0 MHz (for Space operation and Space research applications) |
| > BRx | Baud Rate | > MK | Randomizer Hardware Control (hardware option) |
| > C7 | Quasonix interpretation of IRIG 106-17 Appendix 2-C serial control protocol | > MS | Modulation Scaling |
| > CE | Convolutional Encoder (k=7 rate 1/2) | > P9 | MDM-9 Accessory Board (hardware accessory) |
| > CF | Clock-free Baseband Interface | > PF | Parallel Port Frequency Programming |
| > CG | Clock Generator Output to Baseband Connector | > PM | Parallel Port Mode Selection |
| > 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) |
| > EN | Ethernet Payload Capability | > PW020 | RF Output 20 mW (+13 dBm) (Order Power Code 00) |
| > FM | Allows the TIMTER™ to function as an analog FM transmitter | > RH | Recall Holdoff |
| > FO | Frequency Offset | > STDN | Supports Spacecraft Tracking and Data Network (PM/BPSK) mode |
| > GN | GPS Notch (lowers noise at L1 and L2) | > SWBX | Switch Box (hardware accessory) |
| > HR | High Bit Rate - Increases default max bit rate to 46 Mbps (23 Mbps for Tier 0) | > VF | Variable FIFO Depth, controls transmitter latency |
| > ID | Internal Clock and Data can be saved as a power-up default | > VP | Variable power (31 settings, spanning 24 dB) |
| > LC | Low current in the RF Off state, < 10 mA (hardware option) | > WV | Wide input voltage range |

nanoTX™ OPTIONAL FEATURES

- | | | | |
|-------|-----------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------|
| > AC | Automatic Carrier Wave Output | > LC | Low current in the RF Off state, < 10 mA (hdw option) |
| > BRx | Baud Rate | > LD | Forward Error Correction / Low Density Parity Check |
| > C7 | Quasonix interpretation of IRIG 106-17 Appendix 2-C serial control protocol | > LR | Low Bit Rate - Decreases default min bit rate to 50 kbps (25 kbps for Tier 0) |
| > CE | Convolutional Encoder (k=7 rate 1/2) | > MS | Modulation Scaling |
| > CF | Clock-free Baseband Interface | > PS | Hardware Preset (PS2, PS4, PS8, or PS16) |
| > DP | Dual Power, 64 settings, user selects one for "high" and one for "low", chosen via baseband connector pin | > PW020 | RF Output 20 mW (+13 dBm) (Order Power Code 00) |
| > FO | Frequency Offset | > STDN | Supports Spacecraft Tracking and Data Network (PM/BPSK) mode |
| > GN | GPS Notch (lowers noise at L ₁ and L ₂) | > VF | Variable FIFO Depth controls transmitter latency |
| > HR | High Bit Rate - Increases default max bit rate to 46 Mbps (23 Mbps for Tier 0) | > VP | Variable power (31 settings, spanning 24 dB) |
| > ID | Internal Clock and Data can be saved as a power-up default | > WV | Wide input voltage range |

For additional information, contact Quasonix.

Specifications subject to change without notice

TRANSMITTER ACCESSORIES

Characteristic	Specification
<ul style="list-style-type: none"> Handheld Programmer (P/N: QS-PROG0021050) (at right) <i>Ruggedized and waterproof TDS Nomad Pocket PC with custom Quasonix user interface for convenient in-field programming via RS-232 control interface</i> 	
<ul style="list-style-type: none"> Adapter Plate (P/N: QSX-AC-AP96) <i>Adapts the 2" x 3" TIMTER™ transmitter footprint to a larger 2.5" x 3.5" mounting footprint</i> 	
<ul style="list-style-type: none"> Fan-Cooled Heat Sink (P/N: QSX-AC-32-HS-12V) <i>Heat sink with fan for TIMTER™ and nanoTX™ models. Includes power supply for North American operation.</i> 	
<ul style="list-style-type: none"> Transmitter-powered Heat Sink (P/N: QSX-AC-32-HS-28V-SP) <i>Heat sink with integral fan, power supply, and temperature-controlled power on at +37°C. Draws power directly from a TIMTER™ transmitter. External power supply not needed</i> 	
<ul style="list-style-type: none"> MDM-15 Connector and Pigtails (P/N: QSX-AC-MDM15-36-PIN or QSX-AC-MDM15-36-SOCK) <i>Mating connector prewired with 36" non-terminated, color-coded pigtail cables for transmitter connections. Pin connector required for standard RS-422 transmitters, socket connector for standard TTL transmitters</i> 	
<ul style="list-style-type: none"> MDM-15 Wiring Harness (P/N: QSX-AC-MDM15-HARNESS-PIN or QSX-MDM15-HARNESS-SOCK) <i>Mating connector prewired and terminated with BNC connectors for clock and data, banana plugs for power and ground, and a DB-9 connector for serial control. Pin connector required for standard RS-422 transmitters, socket connector for standard TTL transmitters</i> 	
<ul style="list-style-type: none"> 2nd Generation Digital Frequency and Mode Switch Box (P/N: QSX-AC-DSWBX) <i>Small aluminum digital switch box for use with transmitters equipped with the 9-pin parallel port. Provides frequency and mode programming capability. LED display supports modes 0-14 and five frequency digits. Channel selector for use with Quasonix Dual Transmitters.</i> 	
<ul style="list-style-type: none"> USB to Serial Adapter (P/N: QSX-AC-USBSER-CONV) <i>Converts USB interface to serial interface for controlling transmitters from a PC that does not have a DB-9 connector</i> 	