Transmitter Module

Reference: **TX-X-X-X-NX** *("X" value must be selected).*

NANO**X** ™

THE NE**X**T LEVEL OF DATA ACQUISITION

On Board transmitter module for NanoX system or other third-party system from 5 to 20W RF output power.
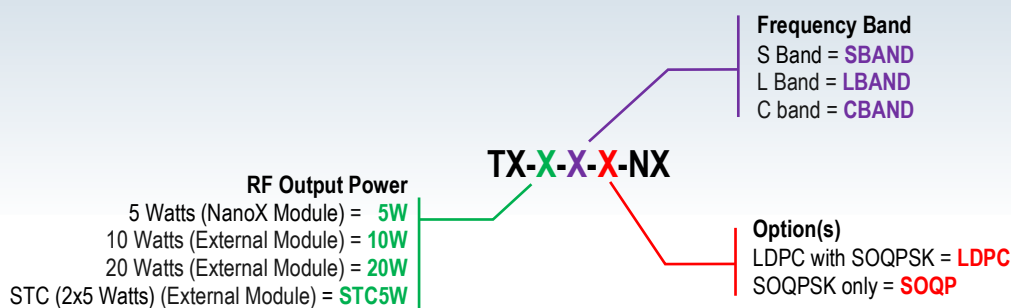
This module can be combined to **CPU-NRT-NX** or **CPU-NT-NX** controller modules to integrate telemetry transmitter functionality

📄 Quick notes

Module Mass	350g without heat sink
Environmental ratings	
Operating temperature	-40°C to 85°C
Storage temperature	-55C to 85°C
Socket Connectors type	MIL-DTL-83513
Number	1
pins	15
Socket Connectors type	SMA
Number	1 or 2 depending on version

Part Number Selection

Frequency Band
S Band = **SBAND**
L Band = **LBAND**
C band = **CBAND**

TX-X-X-X-NX

RF Output Power
5 Watts (NanoX Module) = **5W**
10 Watts (External Module) = **10W**
20 Watts (External Module) = **20W**
STC (2x5 Watts) (External Module) = **STC5W**

Option(s)
LDPC with SOQPSK = **LDPC**
SOQPSK only = **SOQP**

Specifications

📶 RF Specifications	
Carrier frequency range:	2150 to 2400 MHz S band or 1400 to 1600 MHz L band or C band 4400 to 4900 MHz
	or 5091 to 5150 MHz (band must be specified when order).
RF output power:	From 5 W to 20 W (43 dBm ± 1 dB) all conditions (Following part number).
VSWR	1.5:
Load mismatch	no degradation (RF = open or short)
Spurious outputs	In accordance IRIG106-96 (-60 dBc typical)
Harmonics	In accordance IRIG106-96.
Carrier frequency tuning step	125 kHz (for rate below 1Mbits/s) 250 kHz (for rate 1Mbits/s to 40Mbits/s),
Carrier frequency stability	± 2.5 ppm over temperature range. ± 7.5 ppm all clauses including aging over 5 years.
Modulation	User selectable digital PCM/FM (Tier 0)
Spectral occupancy	IRIG 106-17 Chapter 2 spectral mask for tier 0 and tier 1.
Data rate	1000 kbps to 40Mbps (100kbps option available) automatic adaptation of deviation according to Tier 0 and Tier I IRIG mask.
🖧 Options	
STC Option	2 x 5 W for STC with two antennas with SMA connectors according to IRIG 106-15 Appendix S
LDPC Option	1024, 4096 blocks code rate 1/2, 2/3 and 4/5 according to IRIG 106-15 Appendix R.
SOQPSK Option	SOQPSK-TG (Tier I) – The LDPC option include automatically the SOQPSK option.

NanoX – Onboard Transmitter Module
PN# **TX-X-X-X-NX**

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	Monitoring and Settings	
Through GUI or IRIG 106-17 Chapter 2 Appendix 2C	Temperature Alarms, Frequency, Modulation etc …	

	Power Requirement	
Power input	28 V DC typical 18 V min to 36 V max
Current:	3A under 28V DC for 10 W RF output power.
Reverse polarity protection	✓ Included
Thermal protection	✓ Option available

	Dimension	
NanoX Module	(L x h x l) 85x 100 x 28 excluding heatsink and connectors.
External Module	(L x h x l): 99 x 63.5 x 33 mm excluding heatsink and connectors.

Connector pinout

TX ANTENNA OUTPUT

J2 SOCKET
TYPE: **SMA**
MANUFACTURE: **RADIALL**
SERIAL: **R.125.680.000**
SOCKET MARKING: « **TX ANTENNA** »
NUMBER OF THIS SOCKET ON MODULE: **1** (2 if STC option).

TX & POWER INPUT

J1 SOCKET
TYPE: SOCKET **15** CONTACTS **FEMALE**
MANUFACTURE: **GLENAIR**
TYPE: **MIL-DTL-83513**
REFERENCE: **MR75-90-15-S-1-B-S-U**
SOCKET 1 MARKING: « **TX & POWER** »
NUMBER OF THIS SOCKET ON MODULE: **1**

PLUG
TYPE: PLUG **15** CONTACTS **MALE**
MANUFACTURE: **GLENAIR**
TYPE: **MIL-DTL-83513**
REFERENCE: **MWDM-2-L-15-P-6-E-5-18-M**
CABLE MARKING: « **TX & POWER** »
NUMBER OF THIS PLUG ON MODULE: **1**

N° Pin	Name	INTERFACE	Direction
1	TX COMMAND	RS232	From Transmitter
2	NRZ-L	TTL	To Transmitter
3	GROUND		To Transmitter
4	DATA(+) (NRZL+)	RS422	To Transmitter
5	CLOCK(+)	RS422	To Transmitter
6	GROUND		To Transmitter
7	POWER SUPPLY negative		To Transmitter
8	POWER SUPPLY positive		To Transmitter
9	RX COMMAND	RS232	To Transmitter
10	CLOCK	TTL	To Transmitter
11	DATA(-) (NRZL-)	RS422	To Transmitter
12	CLOCK(-)	RS422	To Transmitter
13	GROUND		To Transmitter
14	POWER SUPPLY negative		To Transmitter
15	POWER SUPPLY positive		To Transmitter

NanoX – Onboard Transmitter Module
PN# **TX-X-X-X-NX**

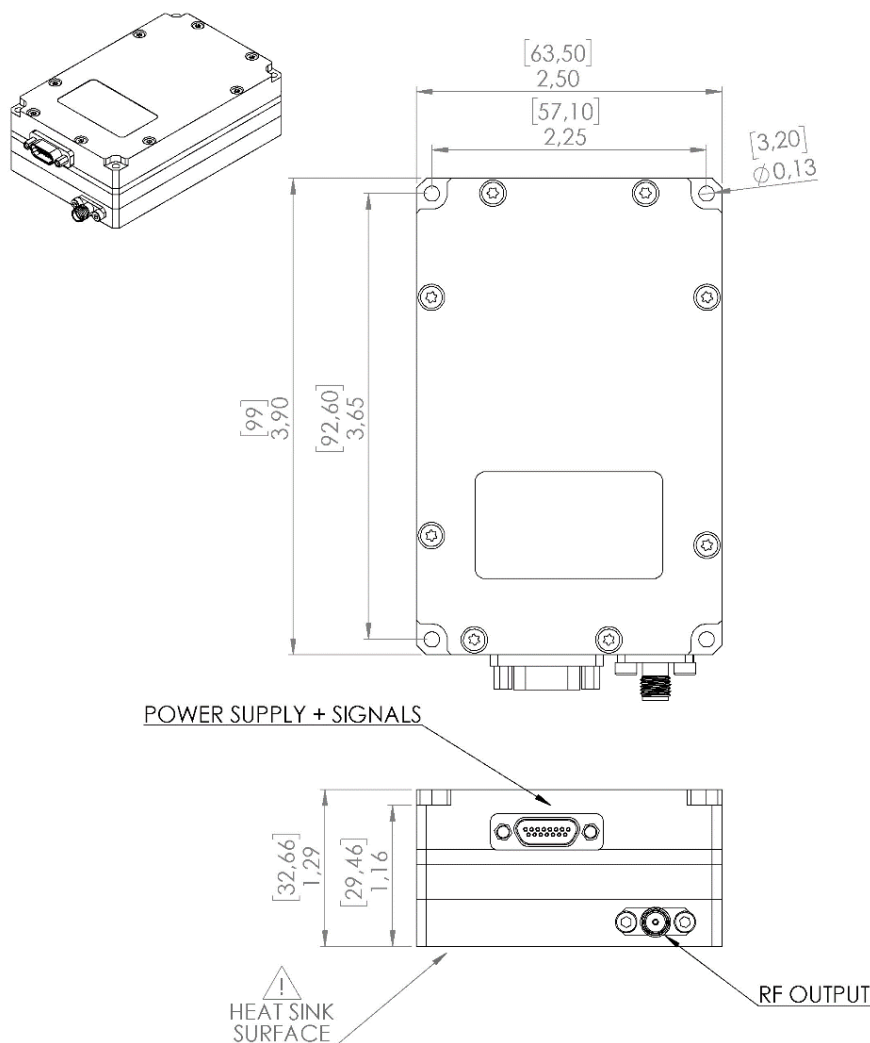# Dimensional Drawing

RF External module

Dimensions are expressed in mm

Dimensions (L x h x l): 99 x 33 x 63.5mm excluding heatsink and connectors.
With heatsink around 150 x 110 x 66 mm. Ambient temperature is limited to +85°C with use of heat sink.
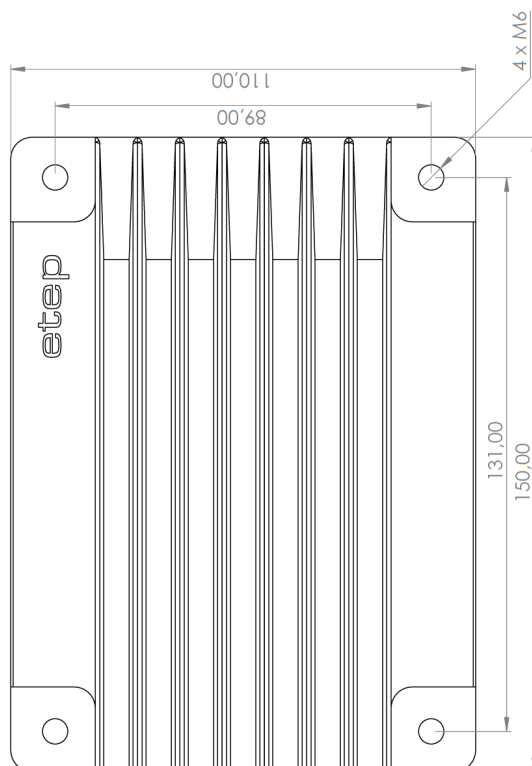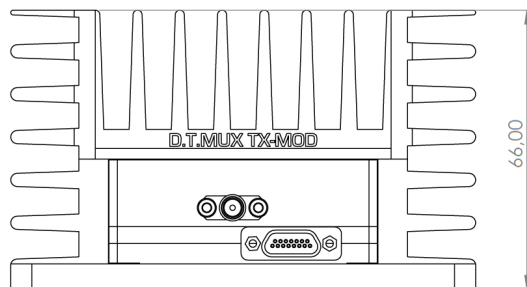**Without heatsink**, it needs a thermal resistance below 0.75°K/W for operating properly without permanent damage.
Weight: around 0.4 kg without heatsink, around 1.5 kg with heatsink

POWER SUPPLY + SIGNALS

HEAT SINK
SURFACE

RF OUTPUT

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RF External module with heat sink

Dimensions are expressed in mm

D.T.MUX TX-MOD

66,00

110,00
89,00
4 x M6
131,00
150,00

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NanoX – Onboard Transmitter Module
PN# **TX-X-X-X-NX**

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RF Internal module

Dimensions are expressed in mm

With heatsink Dimensions (L x h x l): 85x 100 x 55 mm excluding heatsink and connectors.
Weight: around 0.6 kg with heatsink

Representation include "CPU-NRT-NX" and "TX-5W-SBAND-NX" modules.

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