



TABLE OF CONTENTS

NT Series Transmitters Operating Guide

1.0 Introduction	3
2. Functional Description	3
2.1. Power	3
2.2. RF Output.....	3
2.3. Audio	4
2.4. Video.....	4
2.5. Operating Frequency	4
3.0 Specifications for NT Series Transmitter.....	4
3.1. RF	4
3.2. Power	4
3.3. Video.....	4
3.4. Audio	5
3.5. Environment	5
3.6. Specifications	5
4.0 Outline & Mounting Drawings: NT Transmitter.....	6
5.0 Cable Drawing:.....	6

NT SERIES TRANSMITTER OPERATING GUIDE

1.0 Introduction

The NT series transmitters are fully synthesized, microprocessor controlled FM transmitters for wireless transmission of broadcast quality video and audio. A single audio channel is FM modulated on a sub-carrier, and combined with the video signal. The NT can operate in bands from 900 MHz to 6 GHz with a typical RF output level of either 1 mW or 250 mW (factory set) into a 50 Ω load.

An optional sub-miniature 1W Power Amplifier (PA) is available, which was designed as a companion unit to the NT. The picture below shows how the NT mounts onto the 1W PA. It accepts 250 mW RF from the NT and boosts it to over 1 Watt. A control signal from the NT (PA Shutdown) keeps the PA off until the NT has locked on frequency. This TTL signal can also be driven externally.



2. Functional Description

2.1. Power

The NT series transmitter operates between +11 to +15 VDC @ 150 mA (typical) for all frequencies at 250 mW RF output. DC is applied through the miniature header connector (J1), Pin 3 VCC and Pin 2 GND.

2.2. RF Output

The unit has a typical RF output of 250 mW or 1 mW (model dependent) into a 50 Ω load. A threaded female SMA connector is supplied on the unit.

2.3. Audio

The unit is supplied with one audio sub-carrier. The miniature header connector (J1-Pin 5 & 2 [GND]) is used to provide unbalanced audio input. The NT can be ordered with either Line or Microphone input. The Microphone input level is set to -34dBm . Line level is configured for $+8\text{ dBm}$. A $+5\text{ VDC}$ is supplied for Microphone Bias.

2.4. Video

Video is applied through the miniature header connector (J1-Pin 1 & 2 [GND]). Nominal input level is 1 V peak-to-peak. The video input is terminated into $75\ \Omega$.

2.5. Operating Frequency

A 16 position rotary switch on top of the unit adjusts the frequency of the transmitter. The exact frequencies that each position represents are determined during the ordering process and programmed by the factory.

3.0 Specifications for NT Series Transmitter

3.1. RF

Frequency	0.9–6 GHz standard (in bands) Consult factory for additional frequencies
Frequency stability	$\pm 0.005\%$
Power out	Typical 250mW or 1mW (optional)
Spurious	lower than -25 dBm
Antenna mismatch	open/short no damage

3.2. Power

Voltage	$+11\text{ to }+15\text{ VDC}$
Current	150 mA typical for 250 mW RF output 80 mA typical for 1 mW RF output

3.3. Video

Input impedance	$75\ \Omega$
Input level	1 Volt (peak-to-peak)
Pre-emphasis	Per CCIR 525/625 lines
Frequency response	$10\text{ Hz} - 5\text{ MHz}$ (NTSC) or 5.5 MHz (PAL)

3.4. Audio

Sub-carriers available (Any one)	4.83, 5.8, 6.0, 6.2, 6.5, 6.8, 7.02, 7.5, 8.3, 8.5, 8.59 (MHz)
Frequency response	50 Hz – 15 kHz, 1 dB peak-to-peak
Injection level	-26 dBc typical
DEV sensitivity	± 75 kHz/ 2.45 Vrms (Line level) ± 75 kHz/ -38 dBm (MIC level)
MIC bias	+5 VDC
Audio pre-emphasis	factory set for 50 (PAL) or 75 (NTSC) µSec

3.5. Environment

Temperature range	-20° to +60° C
Humidity	0 to 100%, non-condensing

3.6. Specifications

Mechanical Size	0.9 x 1.30 x 0.38 in. (0.44 cu. in.)
Weight	< 1 oz. (28.4 g)
Input connector J1	JST, ZR

PINOUT

1. VIDEO IN
2. GROUND
3. DC INPUT
4. MIC BIAS, 5 VDC
5. AUDIO IN
6. PA SHUTDOWN
7. SDA
8. SCL
9. MCU

Note: Pins 7-9 are used for factory set-up.

Output connector J2 (RF out)	SMA-F
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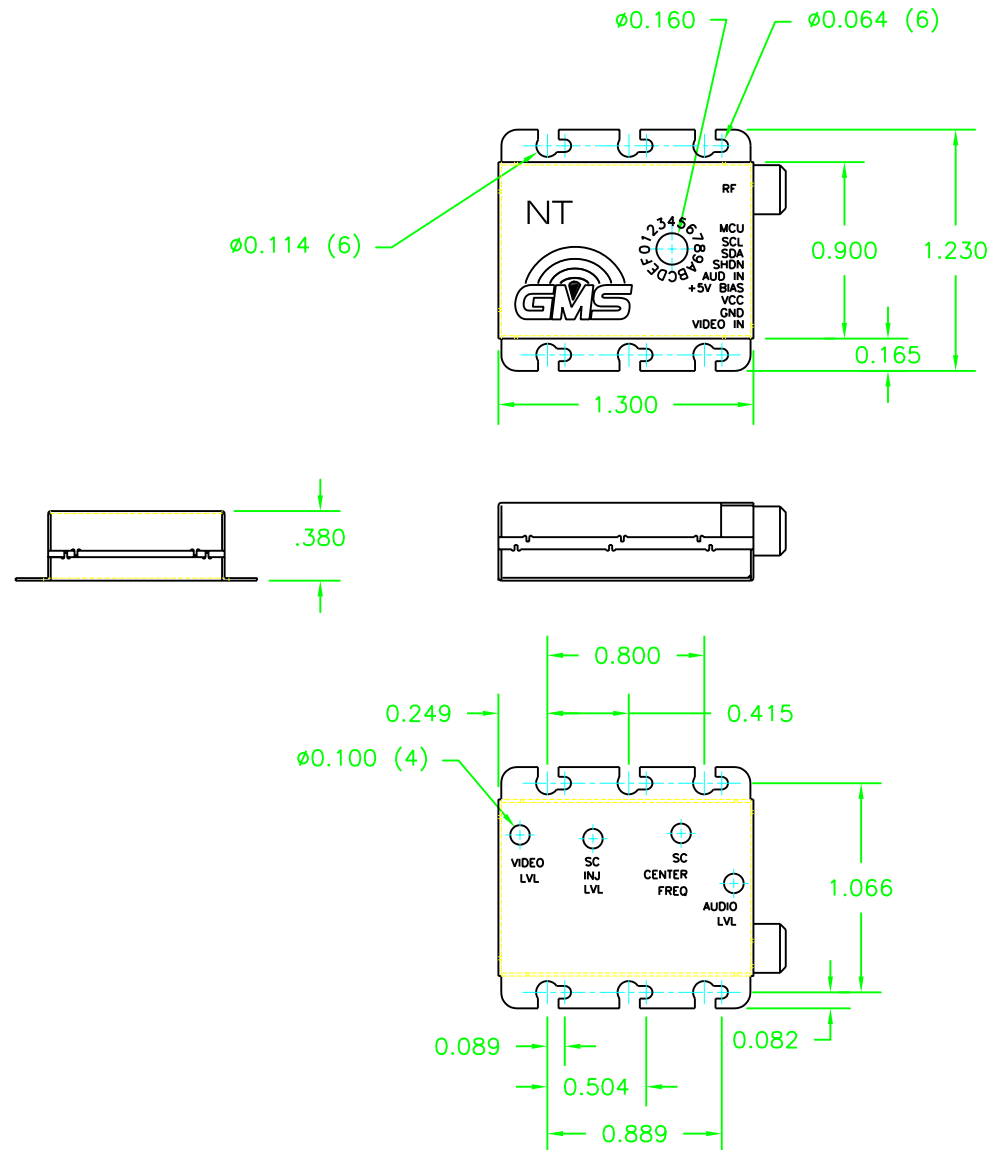
4.0 Outline & Mounting Drawings: NT Transmitter

Outline and Mounting Drawing 100-MD0034B

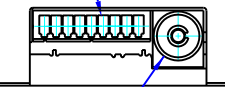
5.0 Cable Drawing:

NT Series PWG Cord: 780-C0040X2

REVISION:						
REV	ECR/ECO	DESCRIPTION	DATE	DRFT	CHK	APPR
X	-	INITIAL RELEASE	08/07/01	JCR	SN	SN
X1	-	PROTO RELEASE	08/23/01	RJL	SN	SN
A	-	PRODUCTION RELEASE: NT-FSK	11/01/01	RJL	TG	TM
B	-	PRODUCTION UPDATE	28 FEB 02	JCR	-	-
-	-	-	-	-	-	-



J1 (SM3-9PIN) GMS
P/N 467-005
MATE PLUG, P1
GMS P/N 467-006
CONTACTS, P1
GMS P/N 467-007



J2 (SSMC, THREADED, RF OUT PORT) GMS P/N
MATE PLUG P2, P/N 541-013 FLEX RF CABLE



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SIZE: A	DRAWING TITLE: OUTLINE & MOUNTING DWG: NT250 & NT FSK	DRAWING: 100-MD0034B	DRAWN BY: JCR	DATE: 08/07/01
SCALE: N/A		-	DESIGNER: JCR	DATE: 08/07/01
		-	CHECKED: JCR	DATE: 08/07/01
		-	ENGINEER: JCR	DATE: 08/07/01
DATE: 08/07/01	SHEET: 1 OF 1	REV. B	B.O.M. 800-NT-X3 800-NT-X4	APPROVED: SN
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