

Product Description

700-800 MHz MT-4E Transmitter

Description:

The 700-800 MHz MT-4E transmitter (shown to the right) is a high performance, low power FM transmitter capable of P25 digital or analog operation in 12.5 KHz (narrowband) or 25 KHz (wideband) channels. The 700-800 MHz MT-4E transmitter operates in the frequency bands: 768–806 and 806-869 MHz.

Daniels UHF MT-4E transmitters can be used in either repeater or base station configurations. When used in base station applications they will transmit clear or secure (encrypted) P25 and analog voice radio communications. When used in repeater applications they will repeat clear or secure (encrypted) P25 and analog voice radio communications. (Secure mode operation is optional.) P25 operation is supported via a purchasable P25 firmware option.



A modular design allows each of the transmitter's internal modules to be individually assembled and tested. This facilitates construction, tuning and maintenance as well as troubleshooting procedures. The transmitter can be programmed with up to 2 banks of 16 channels each. P25 transmitter options such as Frequency, CTCSS, NAC and analog / digital operation are software programmed with the Daniels Radio Service Software package.

Daniels MT-4E P25 Radio Modules are fully compliant with the Telecommunications Industry Standards (TIA) for the P25 9.6 kbps channel signaling rate. The Nexus FIPS 140-2 Cryptography Modules are incorporated into the Daniels MT-4E radio equipment when specified.

Specifications:

Frequency Band	768-806, 806-869 MHz
Channel Spacing	12.5, and 25 KHz
Channel Selection	6.25 kHz increments
Number of RF Channels	32
Transmitter Switching Range	Unlimited
RF Output Power	0.5 – 3.0 Watts adjustable
Duty Cycle	100% continuous duty
Undesired Emissions (Conducted Spurious)	<-80 dBc
Undesired Emissions (Adjacent Channel Power Ratio (Analog & Digital))	<-60 dBc Analog Wideband <-67 dBc Digital
Hum & Noise Ratio	≥ 31 dB Analog Narrowband TIA 603-C ≥ 37 dB Analog Wideband TIA 603-C
Carrier Frequency Stability	+/- 0.1 ppm (-30°C to +60°C)
Modulation Type (Analog)	11K0F3E (FM) 14K0F3E or 16K0F3E (FM)
Modulation Type (Digital)	8K10F1E (FM), 8K10F1D (FM), 9K2F1D
Audio Distortion (Analog)	<3.0%
Audio Frequency Response (pre-emphasis)	As per TIA 603-C
VSWR Protection	<20:1 (All Phase angles) Includes ½ power alarm
Output Impedance	50 Ω (Type N Connector)
Operating Temperature	-30°C to +60°C
Standby Current	<150 mA no encryption <180 mA encryption
Transmit Current (3.0 W)	<1.80 A
FCC ID (Parts 22 & 90)	H4JUT-4E850
IC Certification Number (Land) (RSS 119)	142A-UT4E850

For further information please contact Daniels Electronics at the address shown below.

Description:

The 700-800 MHz MT-4E receiver (shown to the right) is a high performance FM receiver capable of P25 digital or analog operation in 12.5 KHz (narrowband) or 25 KHz (wideband) channels. The MT-4E receiver is available versions supporting the frequency bands: 768-776, 798-824 & 851-869 MHz.

Daniels MT-4E receivers can be used in either repeater or base station configurations. When used in base station applications they will receive clear or secure (encrypted) P25 and analog voice radio communications. When used in repeater applications they will repeat clear or secure (encrypted) P25 and analog voice radio communications. (Secure mode operation is optional.) P25 operation is supported via a purchasable P25 firmware option.

A modular design allows each of the receiver's internal modules to be individually assembled and tested. This facilitates construction, tuning and maintenance as well as troubleshooting procedures. The receiver can be programmed with up to 2 banks of 16 channels each. P25 receiver options such as Frequency, CTCSS, NAC and analog / digital operation are software programmed with the Daniels Radio Service Software package.

Daniels MT-4E P25 Radio Modules are fully compliant with the Telecommunications Industry Standards (TIA) for the P25 9.6 kbps channel signaling rate. The Nexus FIPS 140-2 Cryptography Modules are incorporated into the Daniels MT-4E radio equipment when specified.



Specifications:

Frequency Band	768-776, 798-824, 851-869 MHz
Channel Spacing	12.5 and 25 KHz
Channel Selection	6.25 kHz increments
Number of RF Channels	32
Receiver Switching Range	Unlimited
Reference Sensitivity (12 dB SINAD)	≤ -116 dBm (0.35 μV)
Reference Sensitivity (5% BER)	≤ -116 dBm
Adjacent Channel Rejection (Selectivity)	≥ 45 dB Analog Narrowband TIA 603-C ≥ 70 dB Analog Wideband TIA 603-C ≥ 60 dB P25 Digital TIA 102.CAAA-B
Spurious Response Rejection	≥ 70 dB Analog TIA 603-C ≥ 70 dB P25 TIA 102.CAAA-B
Intermodulation Rejection	≥ 70 dB Analog TIA 603-C ≥ 70 dB P25 Digital TIA 102.CAAA-B
Hum & Noise Ratio	≥ 31 dB Analog Narrowband TIA 603-C ≥ 37 dB Analog Wideband TIA 603-C
L.O. Frequency Stability	+/- 0.1 ppm (-30°C to +60°C)
Modulation Type (Analog)	F3E (FM) or F3E (FM)
Modulation Type (Digital)	F1E (FM), F1D (FM), F1D
Audio Distortion (-30°C to +60°C)	≤ 5 %
Audio Output (600 Ω balanced)	+3.0 dBm de-emphasized or flat max.
Input Impedance	50 Ω (Type N Connector)
Operating Temperature	-30°C to +60°C
Operating Current (Unencrypted)	<200 mA maximum
Operating Current (Encrypted)	<205 mA maximum
Industry Canada Certification #	142A-UR4E768, 142A-UR4E800, 142A-UR4E850

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