Hochfrequenzbaugruppen
Fernsteuerkomponenten
Fernsteueranlagen
FUNKTECHNIK GMBH

Sales office/Beratung & Vertrieb · Design & Production/Entwicklung & Produktion

UHF-FM Synthesized Transmitter 70TX-LM(E)

The **70TX-LM** is a low-cost **10 mW FM narrow band multi-channel radio data transmitter** according to **EN 300220**. The module is realized as a synthesizer and allows operation in the **European ISM band** from **433,100 to 434,700 MHz** on a total of 8 channels without a fixed raster. The transmitter reaches its full power already at 2.3V.

The internal microcontroller generates from the information of 3 solder bridges (3 bit data word) a serial data protocol which sets the desired channel with the help of a synthesizer. There is no need for a complicate programming. On customer request we can program the module with 8 arbitrary frequencies. The **70TX-LM(E)** transmitter basically covers the frequency range from **430 to 440 MHz**.

If the frequency should be changed during operation, the variant 70TX-LME is suitable. With this module the 3 data bits can be changed externally via the extended pin header (7-pin instead of 4-pin) by means of a DIL switch or a uC. **Short switching times** predestine the module even for **frequent frequency changes**.

In contrast to other transmitter modules from our production, the modulation is exclusively tuned to digital data. For transmission of **analog data**, please use the more universal 10mW transmitter modules **70TX-M1** (single channel) or **70TX-S** (multi-channel).

In combination with the **70RX-S2** or **70RX-M2** receiver modules, long-range radio systems can be set up for simplex or half-duplex operation. Together with our remote switching module **FSM24**, the **free field range** is about **1400 m**.

Features

- narrow band multi channel transmitter
- super small size
- low current consumption
- data rate up to 9600 Bd
- no registration and free of charge
- conform to RED (2014/53/EU), EN 300 220

Applications

- Remote control systems
- Data communication
- Telemetry systems
- Alarm systems
- Security systems

Pictures sized up

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Specifications:

Communication	Simplex	
Frequency range	433,100 – 434,700 MHz	free raster
Optional frequency range	430 – 440 MHz	frequencies on customers request
Number of channels	8	adjusted by solder bridge or uC
Output power	10 dBm	at 50 Ω
Modulation	FM narrow band	
Modulationseingang	0,7*Vdd...Vdd	digital only
Deviation	± 2,4 kHz (± 50 Hz)	optional 1,5 - 4,8 kHz
Data rate	100 – 4800 Bd	9600 Bd planned
Settling time	10 ms (Voltage on)	
Hopping time	10 ms	70TX-LME only
ACP unmodulated	typ. 54 dB	at 25 kHz raster
Temperature range	- 30 °C....+ 80 °C	
Supply voltage	2,3 V - 5,3 V	2,2 V - 5,5 V max
Current consumption	24 mA	at 3V
Dimensions	22,0 x 13,8 x 6,0 mm	
Weight	<5 g	
Material	stainless steel	with 4pin (or 7pin) header
Antenna connector	on pin header	
Compatible to	Circuit Design CDP-TX-05M-R	70TX-LM only
Approvals	RED (EN 300 220)	Europe
	FCC / CAN planned	USA and Canada

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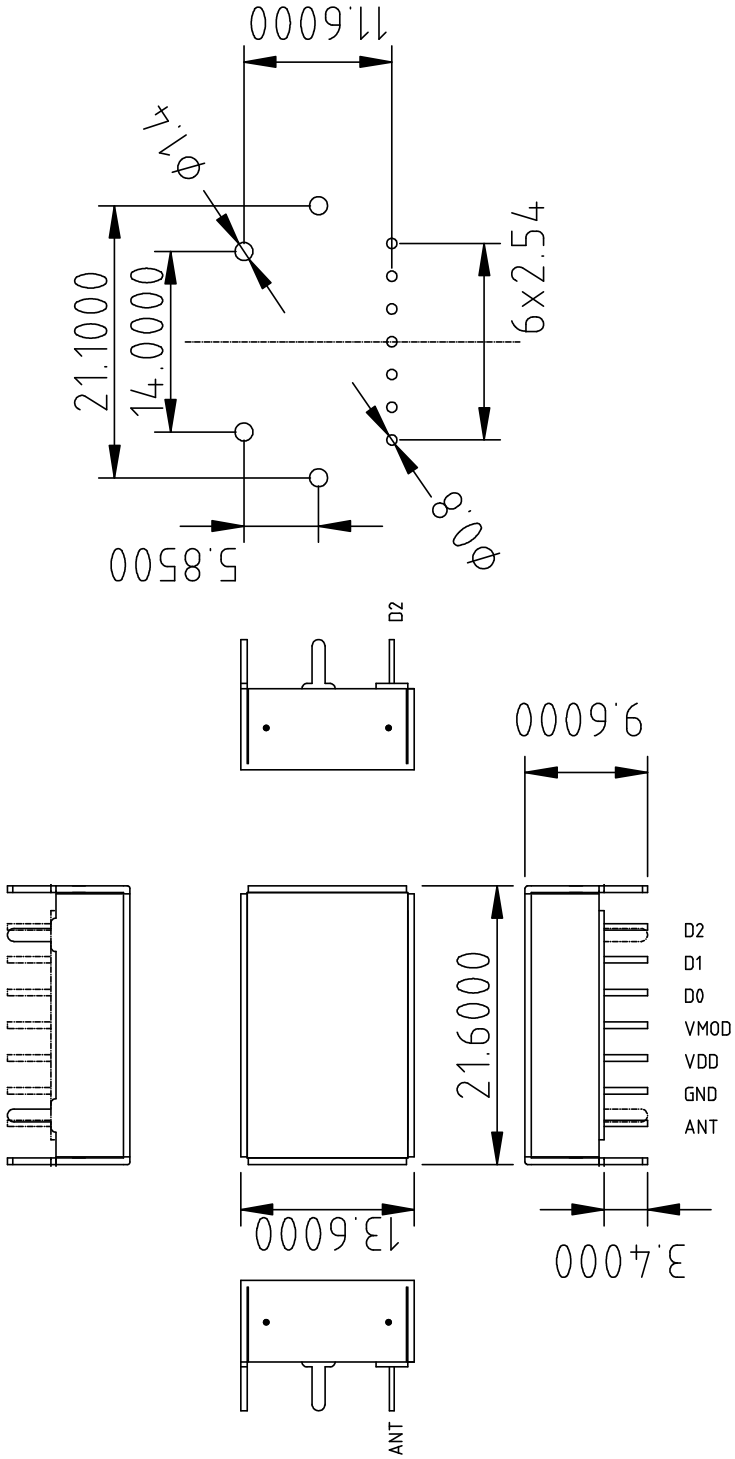
Dimensions and interface:



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Interface description:

ANT **Antenna output of the module**, ESD protected

GND **Ground of the module** (also connected to the metal case)

Vdd **Input: Power supply of the module**

2,3 – 5,3 V DC stabilized, minimum voltage 2,2 V, absolute maximum voltage 5,5 V, internal low noise and low drop voltage stabilization to 2,2 V, **no reverse voltage protection**

VMod **Input: Modulation (digital signal only)**

TTL compatible 5 Vpp when using a 5V power supply (else max. Vdd)

D0 – D2 **Input: Frequency setting of the module**

There are are three solder bridges D0 - D2 on the underside of the board of 70TX-LM that program the frequency. The module is thus an adjustable single channel module. Optionally the module can also be supplied with a 7-pin male header as 70TX-LME. The three data bits D0 - D2 can then be used externally. With a DIP switch (one side connected to ground and the other to D0 - D2) or an external microcontroller the frequency can be changed even during operation.

The following 8 frequencies are supported:

	D0	D1	D2	Frequency [MHz]
CH1	0	0	0	434,075
CH2	0	0	1	434,600
CH3	0	1	0	433,920
CH4	0	1	1	434,700
CH5	1	0	0	433,100
CH6	1	0	1	433,300
CH7	1	1	0	434,300
CH8	1	1	1	434,575

0 means OPEN, 1 means SHORTED (= solder brigde)