Hochfrequenzbaugruppen
Fernsteuerkomponenten
Fernsteueranlagen
FUNKTECHNIK GMBH

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

# UHF-FM Mini PLL-Transmitter 70TX-M1

The **70TX-M1** is a 10mW FM narrow band single-channel data radio transmitter according to **EN300220** and **Part 15**. It is one of the smallest crystal based UHF transmitter modules. It is therefore particularly suitable for portable and mobile applications in which the size of the transmitter plays an important role. An interesting combination of proven techniques has allowed us to develop a product that combines the advantages of extremely frequency stable crystal oscillators with those of the synthesizer. The oscillator signal is characterized by a significantly **lower noise** than cheap solutions. This is particularly noticeable in the range.

The **70TX-M1** transmitter is designed as a single-channel module on a quartz-stabilized frequency in the range of **410 - 510 MHz**. The module is usually used on the **European ISM band** of **433.100 - 434.750 MHz.** With a transmission power of 10mW it is possible to use it free of charge and without registration all over Europe.

The **direct modulation input** does not put any restrictions to the type of signal or code transmission. In addition to purely digital data, **analogue sound or voice signals** are also transmitted perfectly. The transmission of **very low frequencies down to DC** is possible.

The combination with our receiver modules **70RX-M2** or **70RX-S2** offers to the the user a perfect radio system with long distance communication at simplex or half-duplex. Together with our remote control unit **FSM24** a free field range of more than **2000 m** can be expected.

## *Features*

- narrow band single channel transmitter
- very small size
- low current consumption
- data rate up to 9600 Bd
- no licence required
- compliance to RED (2014/53/EU), EN 300220
- FCC and Canada notifications

## *Applications*

- Remote control systems
- Industrial applications
- Telemetry systems
- Alarms
- Security systems

Pictures 40 % sized up

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## Specifications:

| | | |
|---|---|---|
| **Communication** | Simplex | |
| **Frequency range** | 433,100 – 434,750 MHz | In 25 kHz steps |
| | optional 410 – 510 MHz | |
| **Number of channels** | single channel (fix) | |
| **Output power** | 10 mW | at 50 Ω |
| **Modulation** | FM narrow band | analog and digital |
| **Data input level** | 5 $V_{pp}$ (TTL) | |
| **Deviation** | ± 2,5 kHz (± 300 Hz) | by sinus with 5 $V_{pp}$ |
| **Data rate** | DC – 5 kHz (9600 Bd) | |
| **Temperature range** | - 25 °C ... + 75 °C | |
| **Supply voltage** | 4.8 – 11 V | max. 4,6 – 12 V |
| **Supply current** | 28 mA (± 3 mA) | |
| **Dimensions** | 25,7 x 23,3 x 8,8 mm | with lashes 37,0 x 23,3 x 8,8 mm |
| **Weight** | 10,3 g | |
| **Material** | stainless steel | with M3 mounting lashes |
| **Antenna connector** | λ/4 – whip antenna (teflon) | optional SMA, SMB or MCX |
| **Approvals** | RED (EN 300220) | Europe (433,0625 – 434,7875 MHz) |
| | FCC (Part 15) | USA (420 – 510 MHz) |
| | CAN | Canada (420 – 430 / 450 – 470 MHz) |

**HM-FUNKTECHNIK GMBH** · Zum Handenberg 3 · D - 66620 Primstal
Tel.: 06875/9105-0 · Fax: 06875/9105-10 · E-mail: info@hmradio.de · Internet: http://www.hmradio.de

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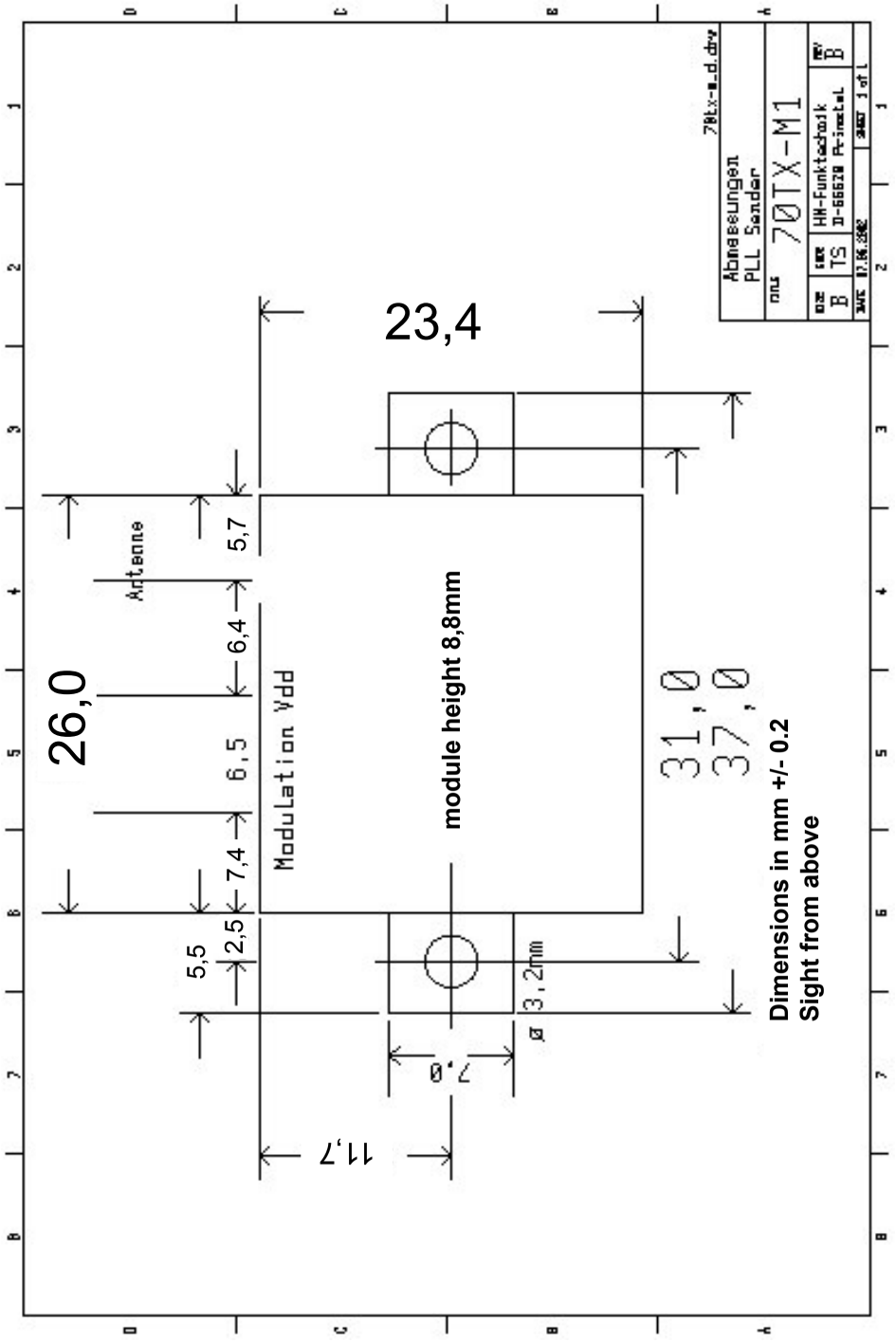
## Dimensions and interface:

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## Interface description:

**Vdd** **Power supply of the module**

**4.8 – 11.5 V DC stabilized**, minimum voltage 4.6 V, absolute maximum voltage 12.0 V, internal low noise and low drop voltage stabilization to 4.6 V, **no reverse voltage protection**

**Modulation** **Modulation input of the module**

**TTL compatible 5 Vpp** (with a DC Offset of 2.5 V or AC coupled)

The input is DC capable. Shifting of the DC-Offset therefore changes the transmission frequency. The unconnected input has a DC offset equal to half the nominal modulation voltage. Either the incoming modulation signal must have the same DC offset or be coupled via a capacitor (we recommend 1uF). However, a capacitor cuts off low frequencies of the spectrum.

The nominal deviation of 2.4 kHz is achieved at a modulation voltage of 5 $V_{pp}$. A lower modulation voltage reduces the available deviation.

**Case** **Ground of the module** (connected to the PCB ground)

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