Hochfrequenzbaugruppen
Fernsteuerkomponenten
Fernsteueranlagen
FUNKTECHNIK GMBH

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

UHF- FM Professional Receiver 70RX-T1

The 70RX-T1 is a **professional FM narrow band multi-channel radio receiver** according to **EN300113**. Compared to the predecessor 70RX-T the height was reduced by 35%. In combination with our transmitter modules a **long-range radio system** can be set up in simplex or half duplex mode.

In addition to the standard frequencies in the **European ISM band** at **433 / 434 MHz**, filters are available for the world's most popular frequencies in the **400 MHz band**. Due to the bandwidth of the filters, a wide range can be covered with only a few variants. Currently, filters are available for **406 - 418 MHz, 418 - 428 MHz, 428 - 438 MHz, 438 - 448 MHz, 456 - 466 MHz and 466 - 476 MHz**. Please ask us for your desired frequency.

The **frequency setting** is easily predefined for the user in multiples of the channel raster. Therefore, complex programming of the receiver module is **not necessary**. A DIP-switch or simple soldering bridges are sufficient. The internal microprocessor generates a serial data protocol out of the 8 bit parallel data word which sets the synthesizer. Up to **256 channels** can be pre-programmed on customer request.

High-current mixers and **complex crystal filters** provide the 70RX-T1 with an **extraordinarily high selectivity and interference immunity**, which enables the operation of many devices in close proximity to each other in terms of spatial and frequency. The outstanding sensitivity for a professional receiver allows signal transmissions over very long distances. 10mW output power of **70TX-M1** or **70TX-S** together with the remote control unit **FSM24** is f.e. sufficient for a free field range of more than **1800 m**.

The **direct audio signal** output doesn`t restrict its use for any kind of coding. Any type of recommendable signal can be used, even **analogue audio signals**, e.g. speech. A **Butterworth filter** at the output eliminates noise- and interfering signals with high efficiency.

Features

- professional narrow band multi channel receiver
- very small size
- low current consumption
- data rate up to 9600 Bd
- no licence required
- compliance to RED (2014/53/EU)
- EN 300113 und EN 300220

Applications

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

Real size

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Specifications:

Communication	Simplex	
Frequency range	433,0625 – 434,7875 MHz	12,5 / 25 kHz raster
Optional frequency range	406 – 476 MHz	other frequencies on request
Number of channels	139 (ISM 433 / 434 MHz)	max. 256
Modulation	FM narrow band	analog and digital
Receiver type	Double Superhet	
Sensitivity	typical –120 dBm	for 12 dB SINAD (CCITT filtered)
Mirror rejection	> 90 dB	
Spurious Response Rejection	typical > 85 dB, min 80 dB	
Blocking (inside useful band	typical >105 dB, min 100 dB	
Intermodulation	> 65 dB at 6 V	> 62 dB at 5 V
Selectivity	> 60 dB	at 25 kHz channel spacing
Startup Time	< 20 ms (Voltage on)	
Hopping time	< 8 ms (800 kHz hop)	
NF-output	1000 mV_{ss}	bei 2,5 kHz deviation, inverted
Data rate	DC – 5 kHz (9600 Baud)	
Temperature range	- 25 °C....+ 75 °C	
Supply voltage	4,8 – 11,5 V	max. 4,6 – 12,0 V
Supply current	60 mA (± 3 mA)	at 6 V
Dimensions	51,8 x 31,6 x 9,7 mm	with lashes 61,8 x 31,6 x 9,7 mm
Weight	23 g	
Material	stainless steel	with M3 mounting lashes
Antenna	λ/4 – whip antenna (teflon)	optional SMA, SMB, MCX or coax
Outputs	Mute, RSSI, Lock Detect	
Approvals	RED (EN 300113) FCC / CAN / ARIB	Europa 433,0625 – 463,0625 MHz on request

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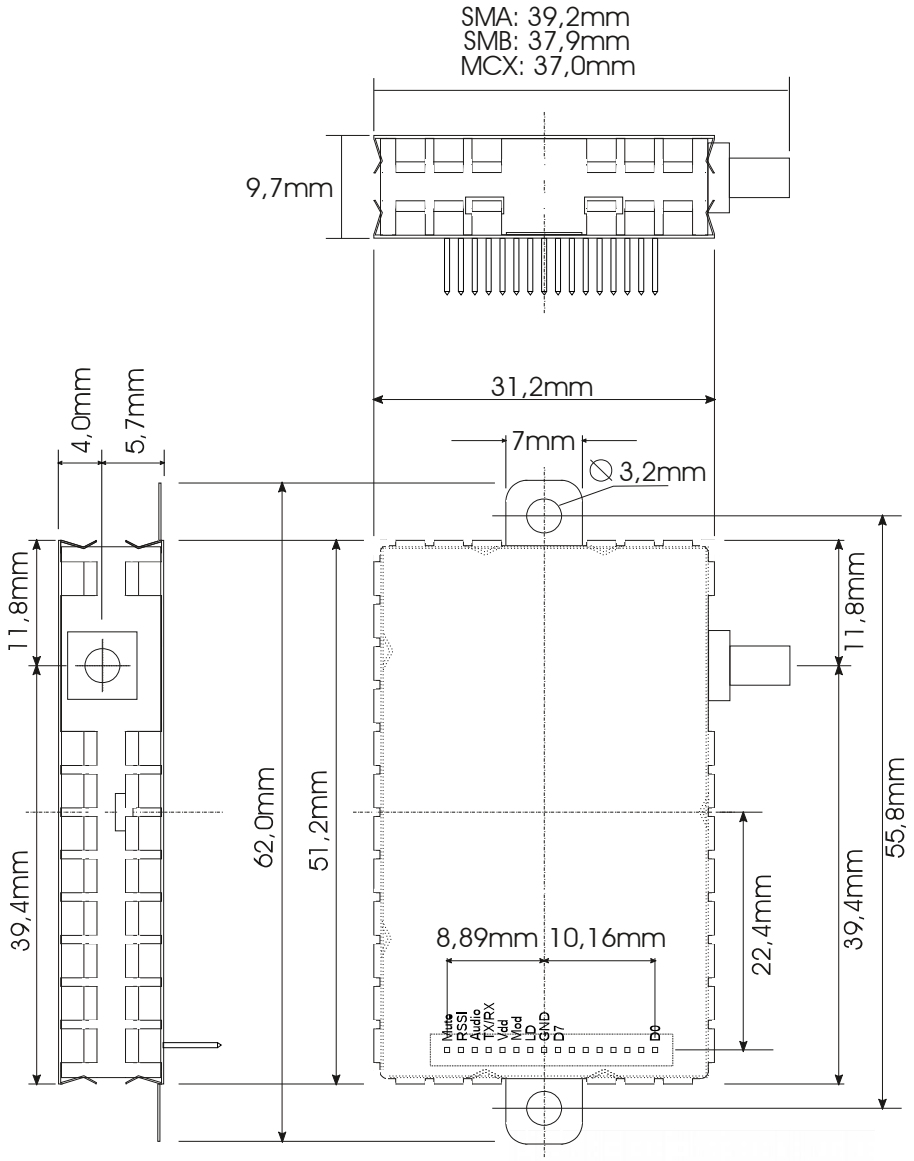
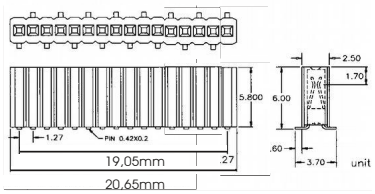
Installation dimensions and 16 pin header:



Pin 0.46mm square
Use drill with 0.65 to 0.70mm

Compatible plugs for SMD available



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Description of the interface:

Mute **Output: Indicates the receipt of a carrier signal** (open collector)

If the input power typically exceeds **-117 dBm** (corresponds to 18 dB SINAD at 2.5 kHz deviation, signal 1 kHz sine, rated with CCITT filter) the voltage is 4.6 V (below that power level 0 V). The hysteresis is 1-2 dB

RSSI **Output: Indicates the field strength at the antenna input**

The DC voltage at this output is proportional to the field strength of the received carrier at the antenna, typical **0.7 V DC at -120 dBm** and **2.3 V DC at --65 dBm** input level. The dynamic range is about 60 dB.

Audio **Output: Received AF-signal**

The voltage is **1000 mVpp** at a nominal frequency deviation of the transmitter of 2.5 kHz with a DC offset of about **2 V** (this offset follows the frequency offset between transmitter and receiver and is not constant), NF transmission range from **0 Hz - 5 kHz** (DC capable), **inverted**

TX/RX *not connected at this module*

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

4.8 – 11.5 V DC stabilized, minimum voltage 4.6 V **(fully compliant to EN 300113 from 5.6 V upwards)**, absolute maximum voltage 12.0 V, internal low noise and low drop voltage stabilization to 4.6 and 5.6 V, **no reverse voltage protection**

Mod *not connected at this module*

LD **Output: Lock detect indicator** (open collector)

This output indicates if the synthesizer is locked (2.8 V if locked, else 0.0 V). When changing the operating states, the PLL temporarily unlocks.

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

D0 – D7 **Frequency setting**, based on the bit pattern (internal pullup to 3.3 V)

Output of the lowest possible frequency if not connected. Grounding of the weighted pins D0 - D7 rises the frequency stepwise (f.e. at 12.5 kHz raster: D0 12.5 kHz, D1 25 kHz, D2 50 kHz,..., D7 1.6 MHz). The easiest way of the implementation is a DIP-switch which is connected to DO – D7 and grounded on the other side. The corresponding table to set up your desired frequency is available on our homepage.

$$frequency = start\ frequency + raster * \sum_{i=0}^{7} \left(Di * 2^{i} \right)$$