APPENDIX H: MANUAL

Please see the following pages.

HM - FUNKTECHNIK GmbH

Operation and Instruction Manual

for the Radio Module **70TX-S**

FC - PUX - **70TX-S** CE 0682 !

HM FUNKTECHNIK GmbH

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SAFETY- RF EXPOSURE COMPLIANCE

This device has been designed using a low power transmitter. It complies with the Federal Communications Commission (FCC) RF exposure limits for General Population/Uncontrolled exposure environment. In addition, it complies with the following Standards and Guidelines:

- FCC 96-326 (1996), Guidelines for Evaluating the Environmental Effects of Radio-Frequency Radiation.
- FCC OET Bulletin 65 Edition 01-01 (2001) Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
- ANSI/IEEE C95.1-1992, IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
- ANSI/IEEE C95.3-1992, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave.
- Use ONLY the supplied antenna and accessories. Unauthorized accessories may violate the FCC rules and regulations.
- The module must be installed or integrated by providing a minimum separation distance of 20 cm between the antenna and the human body at all time.

Label Requirement:

- A label must be affixed to the outside of the end product into which the authorized module/product is incorporated, with a statement similar to the following: “This device contains Transmitter module FCC ID: **PUX-70TX-S.**

1. Purpose and application of the Radio Module 70TX-S:

The 70TX-S radio module is a FM-narrow bandwith type radio module. The transmitter allows the use of up to 256 channels within a bandwith of about 5MHz in the range from 421 to 510 MHz. The spacing is 25KHz.

The module is supplied by HM-Funktechnik GmbH (HM-Radio USA) as an OEM product and is to be installed in customer designed peripherals, such as

- radio remote control devices for machinery in industrial sites
- burglar alarm system, data in general and voice, only in alarm conditions
- data transmission in telemetry systems
- data transmission in wireless hand held terminal systems
- wireless data transmission in general
- digitalvoice resp. synthesized voice for FRS

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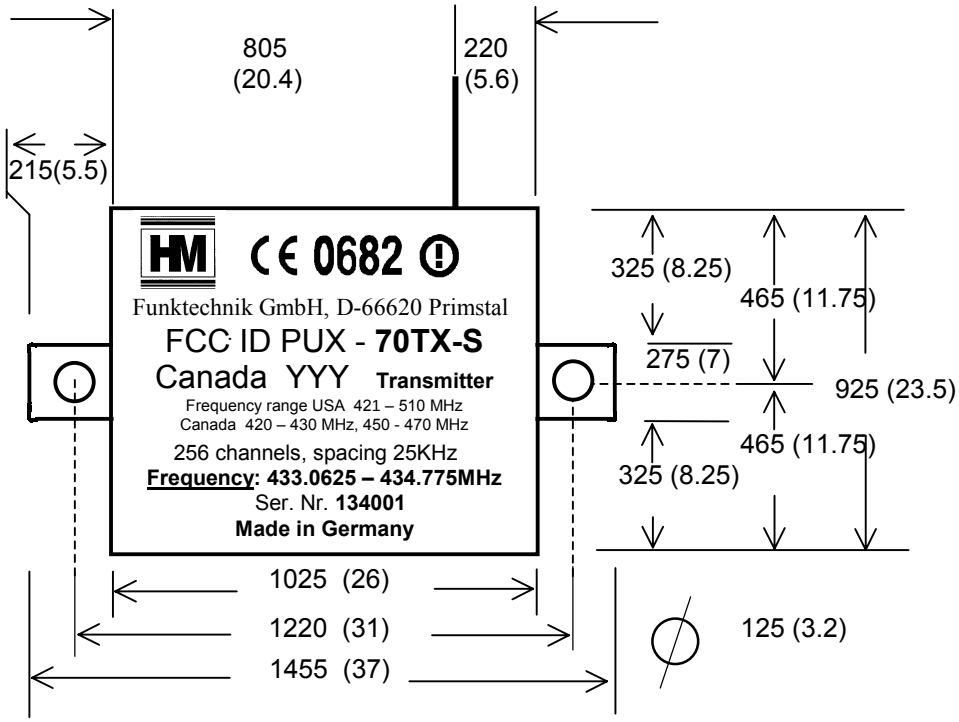
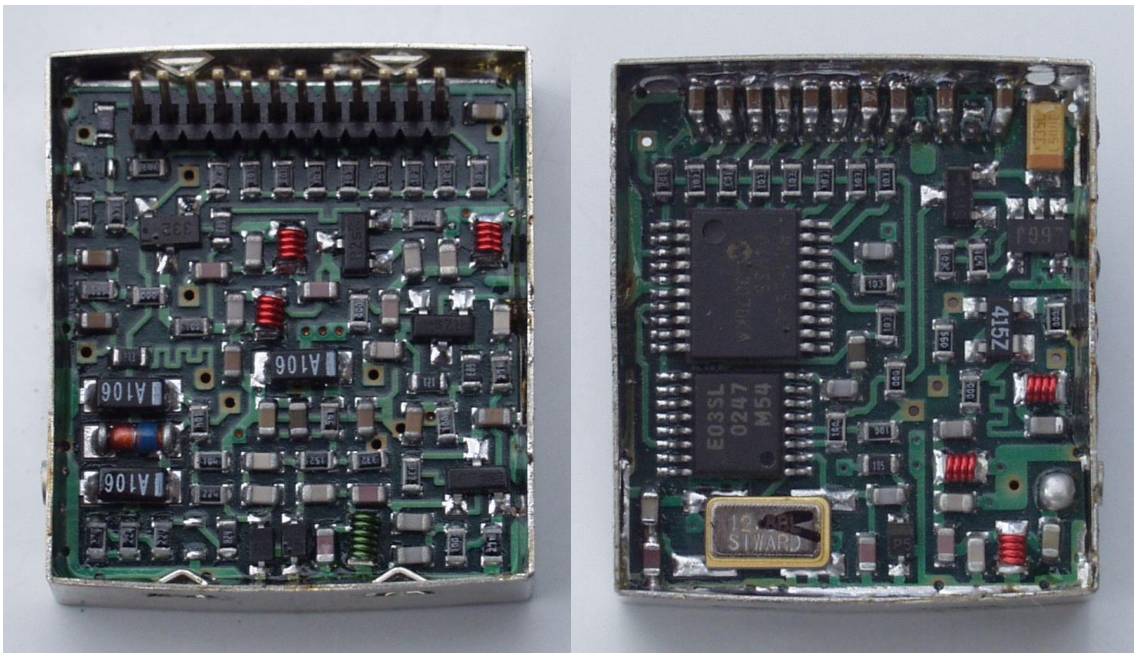
2. Dimensions and connections to peripheral devices:



The module high is 400 mil (9.9mm).
All dimensions are in mil, values in brackets are the corresponding mm numbers. Tolerance +/- 0.2 mm
[2]) Information shown on this label is not identical with the label on the module



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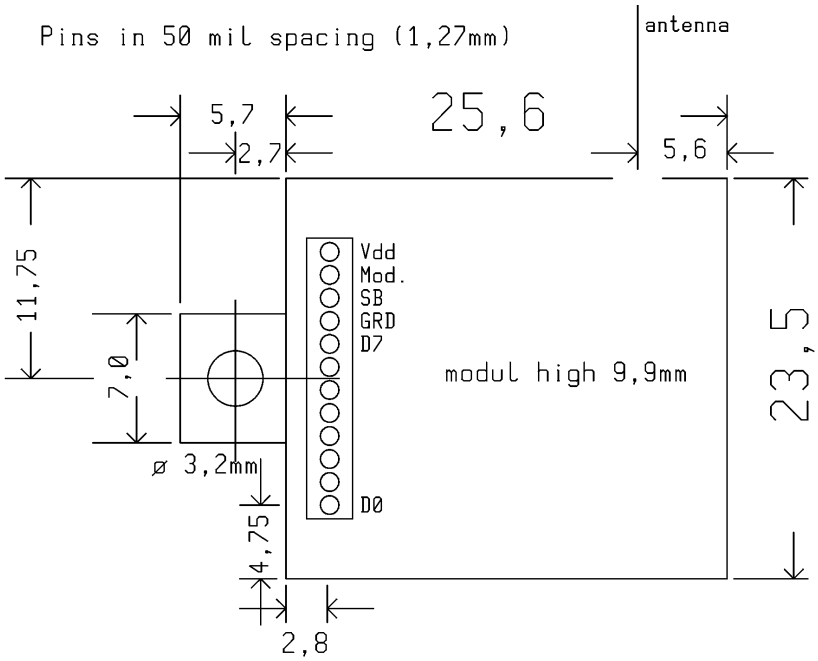

Vdd	Supply Voltage 3.5-10V DC
Mod.	Modulation Input
SB	Standby Pin:
	Standby if open
	Transmitting if grounded
GRD	Ground
D7	MSB of frequency control
.	
.	
D0	LSB of frequency control

plug connector is symmetrical about the middle
dimensions in mm, +/- 0,2
Top view!

D0 to D7 changes the frequency of the transmitter. If the pins D0 to D7 are all open the transmitter works with the lowest programmed frequency. The frequency adjustment is digitally coded. Grounding of D0 rises the frequency about the channel spacing 25KHz. D1 rises about double D0, D2 rises about double D1 and so on. So D7 rises the frequency about 1600 times of D0 (2^7), that means 3.2MHz with 25KHz spacing.

You can only use the preprogrammed frequencies. No other frequency is possible. The standard version uses 68 channels in the frequency range from 433.0625 to 434.775MHz with a 25KHz spacing. If you programm a channel higher than 137 the frequency will stay the same than on 137. The complete frequency list is available as PDF on our homepage or by email. Please contact hmradio@aol.com.

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3. Technical data:

Supply Voltage	3.5V to 10 V DC
Absolut **maximum** rating	12 V DC
Supply current	31 mA (± 3mA)
Modulation input level	1.65 V DC + 1.65 V sinωt for ± 2.5KHz frequency deviation
Modulation frequency	0 - 5 KHz
Input impedance	> 4.7 KΩ
RF – output power	10 dBm ± 2 dB conducted
Frequency accuracy	± 1.5 KHz
Temperature stability	± 5 KHz from -20°C to +70°C

4. Restrictions:

- **Do not supply a higher modulation input level or a higher frequent audio signal to the TX modulation input as specified in 3**
- **Do not us the 70TX-S radio module to transmit audio or voice, expect in alarm and emergency situations**
- **Do not build illegal spy devices using the 70TX-S radio module**
- **Do not operate the module at lower or higher supply voltages as specified**

For any further question, comments or advices, please contact HM-Funktechnik at

HMRADIO@AOL.COM

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