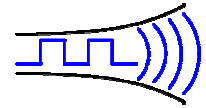


**NEW**

# Radiometrix



Hartcran House, 231 Kenton Lane, Harrow, HA3 8RP, England

11 November 2005

Tel: +44 (0) 20 8909 9595, Fax: +44 (0) 20 8909 2233

**HX1 (300mW)**

## VHF NARROW BAND FM 300mW TRANSMITTER

*The special HX1 transmitter modules offer a 300mW RF output VHF data link in Radiometrix SIL standard pin-out and footprint. This makes the HX1 ideally suited to those low power applications where existing narrow band and wideband transmitters provide insufficient range. Together with the matching RX1 or BiM1R receiver a one-way radio data link can be achieved over a distance up to 10km+ with suitable choice of data rate and antennas.*



Figure 1: HX1-169.4125-3-5V

### Features

- Standard frequency: 169MHz band
- Other frequencies from 120MHz to 180MHz
- Data rates up to 3kbps
- Usable range over 10km
- Fully screened
- Low power requirements

The HX1 is a narrow band radio transmitter module for use in long range data transfer applications at ranges up to 10kilometres. HX1 transmitter circuit is the BiM1T transmitter circuit in the TX1 pin-out with slightly enlarged dimension to accommodate extra Power Amplifier circuit to produce 300mW RF output and available for operation on 169MHz European licence exempt frequency band.

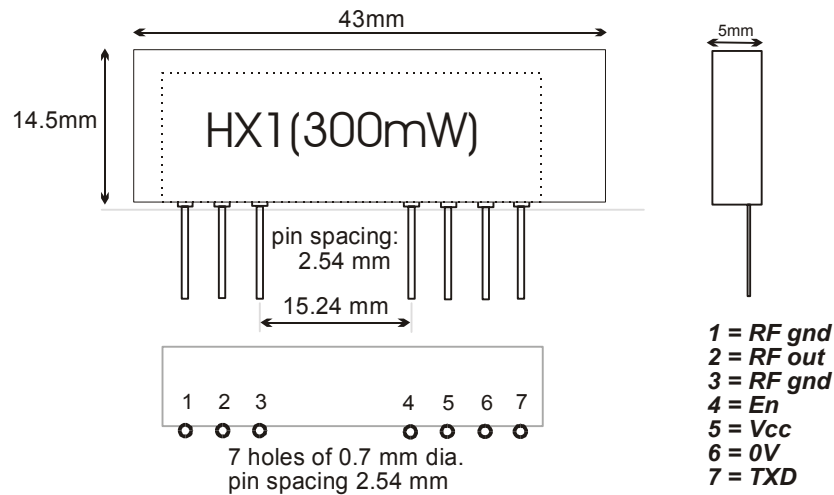
### Applications

- Tracing and asset tracking systems
- Meter reading systems
- Industrial telemetry and telecommand
- Data loggers
- In-building environmental monitoring and control
- Social alarms
- High-end security and fire alarms
- DGPS systems
- Vehicle data up/download

### Technical Summary

- Transmit power: 300mW (24.7dBm)
- Operating frequency: 169.4125MHz, 169.5625MHz
- Supply: 5V (regulated)
- Current consumption: 140mA nominal transmit
- Data bit rate: 3kbps max.
- Size: 43 x 15 x 5mm

## User interface



TX1H pin	Name	Function
1, 3	RFgnd	RF Ground
2	RF out	50Ω RF output to the antenna
4	EN	Pull high to enable Transmitter
5	VCC	5V regulated DC power supply
6	0V	Ground
7	TXD	DC coupled input for 5V CMOS logic. $R_{in} = 100k\Omega$

**Note:** Pinout and footprint as TX1. (but PCB is longer)

## Condensed specifications:

(Vcc = 5V / temperature = 20°C unless stated)

	pin	min.	typ.	max.	units	notes
<b>Supply</b>						
Supply voltage	4	-	5	-	V	
TX Supply current	4	-	140mA	-	mA	
<b>RF</b>						
RF power output	2	+23.7	+24.7	+25.7	dBm	1
Spurious emissions	2	-	-40	-	dBm	
Adjacent channel TX power		-	-37	-	dBm	2
Frequency accuracy		-2.5	0	+2.5	kHz	3
FM deviation (peak)		±2.5	±3.0	±3.5	kHz	4
Antenna pin impedance	2	-	50	-	Ω	
RF centre frequency		-	169.4125	-	MHz	5
		-	169.5625	-	MHz	5
Channel spacing		-	25	-	kHz	
Number of channels		-	1	-		
<b>Baseband</b>						
Modulation bandwidth @ -3dB		0	-	5	kHz	6
TXD input level (logic low)	6	-	0	-	V	7
TXD input level (logic high)	6	-	5.0	-	V	7
<b>Dynamic timing</b>						
TX select to full RF		-	5	-	ms	

## Notes:

1. Measured into 50Ω resistive load
2. For 1kbps Manchester encoded; the data bit rate is limited to 3kbps NRZ max. to meet adjacent channel power specification.
3. Total over full supply and temperature range
4. With 0V – 5.0V modulation input
5. Other VHF 120-180MHz by special order
6. 5V CMOS compatible
7. To achieve specified FM deviation
8. Operating temperature: -10°C to +60°C, Storage temperature: -30°C to +70°C