

VHF/UHF FM TRANSCEIVER

TCM4


Dimensions

76.2 x 50.8 x 20 mm

SPECIFICATIONS

Model **TCM4**

Frequency Range	144.000 - 146.000 MHz and 430.000 - 440.000 MHz (dual-band) other frequencies on request
Output Power	5 Watt
FM Deviation	± 4.5 kHz
Rx Sensitivity	better than -121 dBm
Reference Oscillator Stability	± 2.5ppm (± 1ppm typ.)
Data Bandwith	1200 Bd MSK (Rx[=uplink]); 1200 & 2400 Bd MSK (Tx[=downlink])
Switching Time	RX→TX 200 ms; TX→RX 250 ms; (typical values)
Power Supply	10 to 32 Vdc
Supply Current Tx	1.6 A @ 12 V / 740 mA @ 28 V
Supply Current Rx	90 mA [UHF] / 105 mA [VHF] @ 12 V
Temp. Range	-20°C to + 70°C (Note: mounting the device on a heatsink is mandatory)
Radiation Hardening	current monitoring (3 separate circuits; system-reset @ overcurrent event)
Dimensions	76.2 x 50.8 x 20 mm
Weight	135 g
RF Output Connector (J2)	SMA-female
System Connector (J1)	Micro-D MDM15 socket

System Connector Pin Description (common)

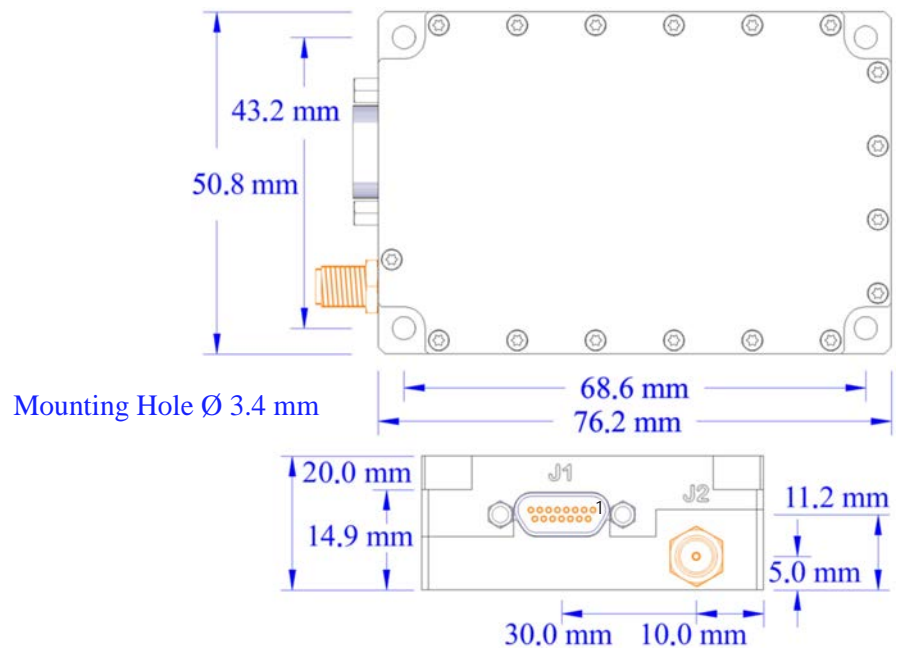
Pin 7 + 8	Supply Voltage (+)	Power & System Return connected to Case
Pin 14 + 15	Power Return	
Pin 9 + 11	Signal Return	
Pin 3 (input)	H=Receive L=Transmit	UART 3V-TTL-Level mode (5V tolerant): HIGH = '1' = idle ; LOW = '0' = active;
Pin 6 (input)	UART(TTL) RxD (control interface)	
Pin 13 (output)	UART(TTL) TxD (control interface)	
Pin 4 (output)	RSSI (0...3 V)	
Pin 5 (output)	Carrier Detect (H= carrier detected; L= no carrier)	
Pin 12 (output)	AF Monitor Output (Receiver)	

System Connector Pin Description (modem version)

Pin 1 (input)	Serial Data Input (transmit mode)	synchronous serial interface, TTL-Level mode: RX data valid on falling edge TX data valid on rising edge
Pin 2 (output)	Serial Data Output (receive mode)	
Pin 10 (output)	Serial Data Clock Output	

System Connector Pin Description (analog version)

Pin 1 (input)	Analog Modulation Input (transmit mode)
Pin 2 (output)	Analog Modulation Output (receive mode)



RS232 Control Interface

Interface Settings

4800,N,8,1, TTL Level

Status String from TCM4

TCM4 09 S075474 Y2584_ R437325 T437325
Q159 N160 D100 P220 V080 U000 _R

detailed description of the control interface protocol:

http://www.srsw.de/x/ files/tcm4_software_interface.pdf

product page

<http://www.srsw.de/1pro/ tcme.htm>

Temperature conversion table:

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// -40 = 79 / -10 = 521 / 20 = 1791 / 50 = 3121 / 80 = 3747 / 110 = 3965
// -35 = 112 / -5 = 673 / 25 = 2048 / 55 = 3272 / 85 = 3801 / 115 = 3984
// -30 = 157 / 0 = 852 / 30 = 2298 / 60 = 3401 / 90 = 3847 / 120 = 4000
// -25 = 217 / 5 = 1059 / 35 = 2535 / 65 = 3511 / 95 = 3885 / 125 = 4013
// -20 = 296 / 10 = 1288 / 40 = 2752 / 70 = 3603 / 100 = 3916
// -15 = 396 / 15 = 1535 / 45 = 2948 / 75 = 3681 / 105 = 3943
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RSSI table:

dBm	VHF	UHF	mV
-60	2220	2240	
-70	2140	2220	
-80	1890	2100	
-90	1660	1860	
-100	1400	1620	
-110	1170	1360	
-120	920	1140	
-999	675	880	