

Licence Exempt ISM & SRD Radio Modules

SHORTFORM CATALOGUE



OVER 20 YEARS OF INNOVATION FROM PIONEERS OF LOW POWER RADIO

Radiometrix continues to be recognised as the leading developer of SRD/ISM Band FM low power radio modules, manufacturing high-quality and cost-effective VHF and UHF modules that cater for the wireless needs of OEMs worldwide. Available on all major frequencies (151, 169, 173, 433, 458, 868 & 914 MHz), we offer a wide variety of modules to suit a diverse range of licence-exempt and licenced applications. The off-the-shelf modules can be customised to meet specific requirements.

Products available/features:

- 12.5kHz, 25kHz Narrow Band & Wide Band FM
- Transmitters, Receivers, Transceivers & RF Modems
- Single-channel and Multi-Channel operation
- UHF & VHF ISM bands
- Encoders & Decoders for RF remote control
- Radio Packet Modems
- Radio Packet Controllers
- Evaluation Kits
- Accessories – Antennas & Connectors

Founded in 1985 in the UK by leading RF industry engineers, Radiometrix has built a long-standing reputation for low power radio products known for innovation, quality, ease of use and practicality, as a result Radiometrix products often become the industry standard.

Radiometrix is a global supplier with over 60% of the company's sales exported overseas and supported by Radiometrix's in-house technical support department and the expanding distributor network. The company has grown to be the market leader by working closely with customers and providing them with products that meet and exceed their design requirements – this is further aided by the philosophy of research and development and continued investment in the expanding R&D department, staffed by leading RF industry professionals. Customers are welcomed and encouraged to work closely with this department at any stage of their product's development.

Radiometrix products are designed and manufactured utilising the most advanced technology available and produced in strict accordance to ISO 9001:2000 standards. Quality is further improved through submission to the company's own strict QA procedures. This carefully managed process ensures customers benefit from the most cost effective quality products and shorter lead times. Radiometrix products are designed and verified to fully comply with FCC/ETSI or regional radio standards.

Radiometrix provides OEMs worldwide with market leading products and is a key supplier to government/defence projects that insist on quality and service. The company is committed to regularly evolving the product range to provide customers with ever improving wireless solutions.



WIRELESS SOLUTIONS FOR

• INDUSTRIAL /COMMERCIAL TELEMETRY & TELECOMMAND

• INDUSTRIAL CONTROL • DATA LOGGING • AUTOMATIC METER READING

• TRACKING/TAGGING • ENVIRONMENTAL CONTROL • HIGH-END SECURITY & ALARMS

Product reference guide

Product	Page	Dimensions mm	Power output mW	Sensitivity dBm	Supply V	TX mA	RX mA	Frequency Band MHz	Data Rate kbps	Features
Transmitter										
TX1	3	32x13x4	10		2.2 - 12	9.5		120-180	10	ND
TX1H	3	43x15x5	100		3.8 - 15	80		120-180	10	ND
HX1	3	43x15x5	300		5	140		120-180	3	ND
ENT1	4	43x14.5x5	100		5	65		169	3	ND
TX2	7	32x13x4	10		3/5	6/10		433.92	40/160	WD
TX2A	5	32x13x4	10		3 - 16	11		433.92/434.42	64	WDX
TX2H	5	32x13x6	25		3 - 5	23		433.92/434.42	64	WDX
TX2EH	5	32x13x6	100		5	45		433.92/434.42	64	WDX
NTX2	8	43x15x8	10		2.9 - 15	18		433/458	10	ND
TX3B	6	32x13x4	5/8		2.9 - 16	14		868.30/869.85	64	WD
TX3H	6	45x17x6	500		5	310		869.5	10	WDX
TX3A	6	32x13x4	1		2.2 - 16	7.5		869.85/914.50	64	WD
TX1M	9	59x38x7	10/100/200		4.5 - 15	50/110/150		60-65/135-175	5	NDAM
LMT1	4	33x23x9	10/100		3.1/4 - 15	34/94		144-173	5	NL
TX2M	9	59x38x7	10/100		4.5 - 15	100		420-480	5	NDAM
LMT2	8	33x23x9	10/100		3.1/4 - 15	34/94		433/458	5	NL
TLC2H	9	37x27x8	10		3.1 - 15	34		433/458	5	NL

Product	Page	Dimensions mm	Power output mW	Sensitivity dBm	Supply V	TX mA	RX mA	Frequency Band MHz	Data Rate kbps	Features
Receiver										
CVR1	3	33x23x8		-120	3	7		120-180	10	NDAR
NRX1	3	47x17x8		-120	2.9 - 15	10		120-180	10	NDAR
RX1	3	48x18x6		-116	2.7 - 12	10		120-180	10	NDAR
RX1L	12	59x38x7		-120	3.1 - 9	1		151.300/173.225	5	NDA
RX2	7	48x18x5		-107/-100/-95	3.3 - 5	13		433.92	14/40/160	WDAC
RX2A	5	48x18x5		-104/-101	2.7 - 16	12		433.92/434.42	10/64	WDAR
NRX2	8	47x17x8		-118	2.9 - 15	14		433/458	10	NDAR
RX3A	6	48x18x5		-104/-101	2.7 - 16	11		869.85/914.50	10/64	WDAR
RX1M	9	59x38x7		-118	4.5 - 15	13		60-65/130-180	5	NDARSM
LMR1	4	46x23x9		-120	3.1 - 15	20		144-173	5	NDARQ
RX2M	9	59x38x7		-118	4.5 - 15	13		420-480	5	NDARSM
LMR2	8	46x23x9		-118	3.1 - 15	20		433/458	5	NDARQ
RLC2H	9	50x30x10		-120	3.7 - 15	18		433/458	5	NDARQ
HVR2	9	50x30x10		-118	3.7 - 15	30		433-435	5	NDARV

Product	Page	Dimensions mm	Power output mW	Sensitivity dBm	Supply V	TX mA	RX mA	Frequency Band MHz	Data Rate kbps	Features
Transceiver										
BiM1	4	33x23x10	100	-120	3.8 - 15	80	8	120-180	10	NDAR
BiM1H	4	33x23x12	500	-120	5	290	8	120-180	3	NDAR
BiM2	7	33x23x4	10	-95/-90	3.3/5	14	12	433.92	64/160	WDAC
BiM2A	5	33x23x5	10	-104/-101	2.9 - 16	14	11	433.92/434.42	10/64	WDAR/C
BiM2H	5	33x23x5	25	-104/-101	2.9 - 16	25	11	433.92/434.42	10/64	WDAR/C
NiM2	8	33x23x12	10	-118	2.9 - 15	20	15	434.65/434.075	10	NDAR
BiM3B	6	33x23x5	5/25	-104/-101	2.9 - 16	17/35	11	869.85/868.30	10/64	WDAR/C
BiM3A	6	33x23x5	1	-104/-101	2.7 - 16	8	11	914.5	10/64	WDAR/C
TR1M	10	59x38x12	10/100	-118	4.5 - 15	55/110	27	135-175	5	NDARSM
SMX1	11	53x32x12	10/50	-120	4.2 - 15	40/65	20	130-180	5	NDARM
UHX1	12	67X30X12	500	-118	3.1 - 15	330	25	140-175	5	NDARMQ
USX2	12	50x30x12	100	-118	3.6 - 15	100	25	314-316	5	NDARMQ
TR2M	10	59x38x10	10/100	-118	4.5 - 15	41/110	27	420-480	5	NDARSM
RMX2	11	30x50x9	10	-119	3 - 15	35	24	433/458	10	NDARQ
SMX2	11	53x32x12	10/25	-120	4.2 - 15	30/45	25	431-436/458	5	NDARM

Product	Page	Dimensions mm	Power output mW	Sensitivity dBm	Supply V	TX mA	RX mA	Frequency Band MHz	Data Rate kbps	Features
Packet Modem										
TXL2	13	43x19x7	10		5	28		433	9.6	WT
RXL2	13	47x17x7		-107	5		22	433	9.6	WART
RPM1	14	39x23x15	10/100	-112	3.3/5	42/86	12	120-180	3	NT+
SP2	7	39x23x4	10	-95/-90	3.3/5	25	25	433.92	64/160	WP
SPM2	15	39x23x7	10	-95/-90	3.3/5	40	15	433.92	18/28	WT+
RPC2A	5	53x32x9.7	10	-101	5	22	20	433.92/434.42	64	WP
RPM2A	14	39x23x10	10	-101	3/5	15	15	433.92/434.42	17	WT+
RPM3B	14	39x23x10	5	-101	3/5	24	15	869.85	17	WT+
RPM3	14	39x23x10	1	-101	3/5	15	15	914.5	17	WT+
TDL2A	13	33x23x7	10	-107	5	28	22	433	9.6	WT
TDH2	13	37x26x8	25	-105	5	50	22	433	9.6	WT

Key to features:

- D** Digital Baseband Input or Output
- A** Analogue Baseband Input or Output
- L** Digital Baseband Input which can be line arised with external parts
- N** 25kHz Narrow Band FM unit
- W** Wide Band FM Unit
- R** Has RSSI pin
- S** Has noise Squelch
- M** Intergral software selectable 1200 baud modem
- T** 9600 baud transparent data link, no baseband input present
- T+** Full Spec 'SPM' type radio modem implementation
- P** 'Spaceport/RPC' type parallel interface
- Q** Quasi-DC data recovery circuits, for unbalanced low data rates
- V** Vibration resistant synthesizer
- X** Extended operating temperature range (-40/+85°C)

Multi-channel

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TX1 / RX1



The TX1 and RX1 form a miniature VHF radio transmitter / receiver pair designed for PCB mounting and are suitable for extended range data links at speeds up to 10kbps. Link ranges in excess of 1km are achievable with suitable choice of data rate and antennas.

- Standard frequencies: 151.300MHz, 173.225MHz, 173.250MHz
- Custom frequencies from 120MHz to 180MHz available to special order
- Single channel, crystal controlled, narrowband (25kHz) radios
- Usable range over 1km

TX1

- Dimensions : 32 x 12.5 x 3.8 mm,
- +10dBm (10mW) RF output
- Supply: 2.2 to 12V @ 9.5mA
- Data rate up to 10 kbps

RX1

- Dimensions : 48 x 18 x 5.5 mm
- -116dBm sensitivity @ 1ppm BER (10kbps data rate)
- Supply: 2.7V to 12V @ 12mA
- Built-in regulator for improved stability and supply noise rejection
- Receive spuri and adjacent better than 55dB
- RSSI output with >80dB range

NRX1 / CVR1



NRX1 (SIL) and CVR1 (DIL) are a low cost 25kHz Narrow Band FM VHF receiver modules. These receivers are compatible with all Radiometrix VHF transmitters on the same frequency. These can be used to extended operating range of applications using wideband SIL and DIL modules.

NRX1

- Dimensions: 47 x 17 x 8mm
- Standard frequencies: 151.300, 169.4125, 173.225, 173.250MHz
- Custom frequencies: 120-180MHz
- Single channel, crystal controlled, narrowband (25kHz) radios
- Sensitivity: -120dBm (for 12dB SINAD)
- Data rates upto 10kbps
- Supply: 2.9-15V @10mA
- AF, Digital Baseband and RSSI
- Double conversion superhetrodyne
- Receiver spuri, image rejection: > 60dB
- Adjacent Channel: >70dB, Blocking: >86dB
- Useable range over 1km depending on Transmitter, Antenna used

CVR1

- Dimensions: 33 x 23 x 8mm
- -120dBm sensitivity (for 12dB SINAD)
- Supply: 3V (regulated) @ 7mA
- Receive spuri better than 60dB
- Adjacent Channel: -65dBm, blocking: -85dBm
- Low Cost alternative in BiM1R (dual in line) footprint
- Data rates up to 10kbps (standard module)

TX1H / HX1



The TX1H transmitter modules offer a 100mW RF output VHF data link in Radiometrix SIL standard pin-out and footprint. This makes the TX1H ideally suited to those low power applications where existing narrow band and wideband transmitters provide insufficient range. The special HX1 transmitter modules offer a 300mW RF output VHF data link in Radiometrix SIL standard pin-out and footprint. 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.

TX1H

- Dimensions: 43 x 15 x 5mm
- Standard frequency 151.300MHz
- Other frequencies from 120MHz to 180MHz
- TX1H is a BiM1T in TX1 pin-out
- Data rates up to 10kbps for standard module
- Usable range over 10km
- Supply: 3.8 - 15V @ 100mW
- Fully screened

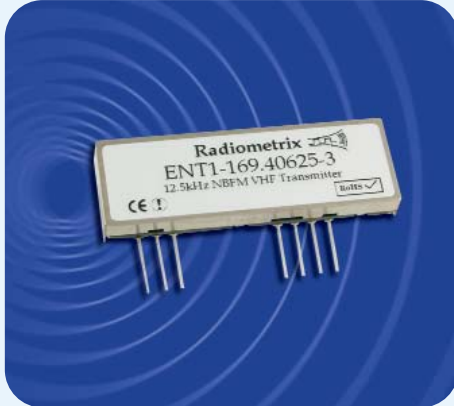
HX1

- Dimensions: 43 x 15 x 5mm
- Transmit power: 300mW (24.7dBm) nominal
- Operating frequency: 144.390MHz, 144.800MHz, 169.4125MHz, 169.5625MHz
- Other frequencies from 120MHz to 180MHz
- Supply range: 5V regulated
- Current consumption: 140mA nominal transmit
- Data bit rate: 3kbps max.

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ENT1



The ENT1 is a 12.5kHz channel narrow band transmitter module and it offers a 100mW RF output VHF data link in Radiometrix SIL standard pin-out and footprint. Together with the matching RX1M/LMR1 receiver a one-way radio data link can be achieved over a distance of 1km with suitable choice of data rate and antennas.

- Dimension: 43 x 14.5 x 5mm
- Standard frequency: 169.406250MHz
- Other frequencies from 120MHz to 180MHz
- 12.5 kHz channel spacing
- Data bit rate: up to 3kbps
- Transmit power: 20dBm (100mW) nominal
- Enable to full RF: 7ms
- Factory-adjustable: +5dBm (3mW) to +20dBm (100mW)
- Supply range: regulated 5v @ 70mA
- Usable range over 1km
- Voltage Controlled Temperature Controlled Crystal Oscillator (VCTCXO)
- FCC Part 90 Compliant
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

BiM1 / BiM1H



VHF BiM1 transceiver modules offer higher power, reliable bi-directional data links in the Radiometrix transceiver standard pin-out and footprint. This makes the BiM1 ideally suited for those markets where existing UHF transceiver modules have insufficient range.

BiM1

- Dimensions: 33 x 23 x 10mm. Fully screened
- Standard frequencies 151.300MHz, 173.225MHz, 173.250MHz
- Other frequencies from 120MHz to 180MHz
- Single channel, crystal controlled, narrowband (25kHz) radio
- Data rates up to 10kbps
- Usable range over 10km
- Also available as separate BiM1T transmitter and BiM1R receiver.
- Transmit power: +20dBm (100mW) or +10dBm (10mW)
- Supply: 3.8 - 15V @ 80mA (100mW TX), 8mA (RX)
- Supply: 3.0 - 16V @ 25mA (10mW TX)
- Sensitivity: -120dBm (for 12dB SINAD)
- Receive spurious better than 60dB
- Adjacent Channel: -70dBm, blocking: -84dBm

- AF, digital baseband and RSSI outputs
- Verified to comply with Australian, New Zealand standard AS/NZS 4268:2003
- 173MHz, 10mW versions conform to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

BiM1H

- Dimensions: 33 x 23 x 12mm. Fully screened
- Transmit power: +27dBm (500mW)
- Supply: 5V @ 290mA (transmit) 8mA (receive)
- Receiver Specifications as BiM1
- Also available as transmit only: BiM1HT (500mW)

LMT1 / LMR1



The LMT1 transmitter and LMR1 receiver modules offer a multi channel, low power, and reliable VHF data link.

- Standard frequency: 173.200 - 173.325MHz (UK band)
- 130-180MHz on any 1MHz switching band
- Serial (32 channels) or parallel (16 channels) frequency selection
- High performance double superhet. PLL synthesizer with TCXO
- Data rates up to 5 kbps for standard module
- Usable range over 1km
- User re-programmable via an RS232 interface
- FCC Part 90 Compliant (12.5kHz variant)
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

LMT1

- Dimension: 33 x 23 x 9 mm
- Transmit power: +10dBm (10mW) standard, 25mW & 100mW variants available
- Supply range: 3.1 - 15V @ 34mA transmit (10mW)

LMR1

- Dimension: 46 x 23 x 9 mm
- Supply range: 3.1 - 15V @ 20mA receive
- Receiver sensitivity: -120dBm (for 12 dB SINAD)
- RSSI, analogue and digital baseband outputs
- Blocking: >84dB
- Adjacent channel rejection: >60dB
- quasi-dc (peak sampling) data recovery circuit (for enhanced performance on unbalanced data streams)

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TX2A / RX2A



The TX2A and RX2A are a miniature PCB mounting UHF radio transmitter and receiver pair. Unlike the older SAW resonator based designs, these radios are crystal / PLL controlled, offering improved stability over a wider operating temperature range. Two higher power versions of TX2A are available, offering 25 or 100mW (TX2H and TX2EH) output power. These units enable the simple implementation of a data link at up to 64 kbps at distances up to 75m in-building and 300m open ground.

- Available on 433.92MHz and 434.42MHz (315MHz versions also available)
- Single channel, crystal controlled wideband radios
- 100% pin compatible with TX2 and RX2

TX2A

- Dimensions: 32 x 12.5 x 3.8 mm
- Transmit power +10dBm
- Supply: 2.7V - 16V @ 12mA
- Operating temperature range -40 to +85 degrees
- 10mW version conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

TX2H

- Dimensions: 32 x 12.5 x 5.5 mm
- Transmit power +14dBm (25mW)
- Supply: 5V @ 23mA (3V version available)
- 25mW version conforms to Australian, New Zealand standard AS/NZS 4268:2003

TX2EH

- Dimensions: 32 x 12.5 x 5.5 mm
- Transmit power +20dBm (100mW)
- Supply: 5V @ 45mA

RX2A

- Dimensions: 48 x 18 x 4.5 mm
- -104dBm sensitivity @ 1ppm BER (10kbps version)
- -101dBm sensitivity @ 1ppm BER (64kbps version)
- Supply: 2.7 - 16V @ 12mA
- Receive spurious better than 50dB
- AF, digital baseband outputs
- 60dB RSSI range

BiM2A / BiM2H



BiM2A is a half-duplex crystals controlled PLL wideband FM transceiver operating on 433.05-434.79MHz European SRD band. It is an enhanced replacement for the SAW based BiM2 and has better frequency accuracy and temperature stability. BiM2H is a high power version with 25mW RF power and specifically made available for Australian/New Zealand users.

- Dimension: 33 x 23 x 5mm
- Crystal controlled PLL FM circuitry for both Tx and Rx
- SAW front end filter and full screening
- Transmit power: +10dBm (10mW), +14dBm (25mW) nominal
- Receiver Sensitivity: -101dBm for 1ppm BER (64kbps)
-104dBm for 1ppm BER (10kbps)
- Supply: 2.9V - 16V @ 14mA TX (10mW), 25mA TX (25mW), 11mA RX
- Data bit rate: up to 64kbps
- Usable range up to 300 metres external, 75 metres in building (@ 10mW)
- RSSI (standard) or carrier detect option
- Analogue and digital baseband
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)
- Conforms to Australian/New Zealand AS/NZS 4268:2003 (ERP @ 25mW)

RPC2A



The RPC2A-433-64 are intelligent transceiver modules, which enable a radio network/link to be simply implemented between a number of digital devices. The module combines a UHF radio transceiver and a 64kbps packet controller.

- Dimension: 53 x 32 x 9.7mm
- Standard frequencies: 433.92MHz or 434.42MHz
- Supply: regulated 5V supply @ < 27mA
- Crystal controlled PLL FM circuitry for both Tx and Rx
- Transmit power: +10dBm (10mW) nominal
- 25mW version also available
- Sensitivity: -100dBm for 1ppm BER
- 64kbps half duplex
- Built-in self-test / diagnostics / status LED's
- Free format packets of 1 - 27 bytes
- Direct interface to 5V CMOS logic
- Packet framing and error checking are user transparent
- Collision avoidance (listen before transmit)
- Power save mode
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

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TX3A / TX3B / RX3A

The TX3A and RX3A are miniature UHF radio transmitter & receiver modules designed for PCB mounting. They allow the simple implementation of data links at speeds up to 64kbps and distances up to 75m in-building or 300m over open ground.

- Available on 869.85MHz and 914.5MHz
- Single channel, crystal controlled wideband radios.
- Data rates up to 64kbps

TX3A

- Dimensions: 32 x 12.5 x 3.8 mm
- Transmit power: 1mW (0dBm)
- Supply: 2.2 - 16V @ 7.5mA
- FCC Part 15.249 Compliant

RX3A

- Dimensions: 48 x 18 x 4.5 mm
- -104dBm sensitivity @ 1ppm BER (10kbps version)
-100dBm sensitivity @ 1ppm BER (64kbps version)
- Supply: 2.7 - 16V @ 11mA
- AF, digital baseband and RSSI outputs
- Extremely low LO leakage (-120dBm typical)

TX3B

- Dimensions: 32 x 12.5 x 3.8mm
- 869.85MHz 5mW 100% duty cycle
- 868.30MHz 8mW 1% duty cycle
- Crystal controlled PLL FM transmit circuitry
- RF power output +9dBm (8mW)
- Supply: 2.7V - 6V @ 14mA (8mW)
- Data rates up to 64kbps
- 869MHz versions conform to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

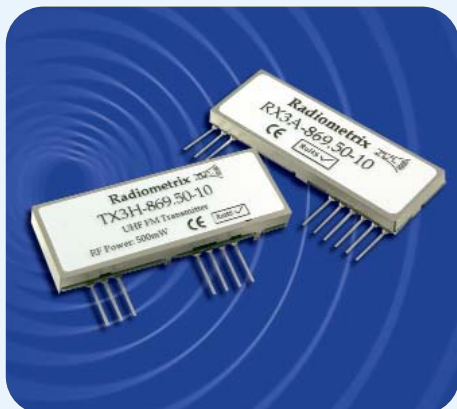


TX3H / RX3A

The TX3H-869.5-10 is an 869.5MHz FM transmitter module with a power output of 500mW nominal. It is a 100% pin-compatible drop-in replacement for the Radiometrix TX1H-151.300-10 and can be used in applications where greater radiated power is desired (for example when space limitations dictate the use of small and inefficient antennas, or for applications where the extra power is permitted). The module will handle raw data rates up to 10kbps.

The TX3H operates on European 869.40 - 869.65MHz sub-band allocation for 500mW and is designed to meet EN300 200-3 (radio) and EN301 489-3 (EMC) requirements. Custom frequencies may be available to order.

- Dimensions: 45 x 17 x 5.5mm
- Transmit power: 500mW (27dBm)
- Operating frequency: 869.50MHz
- Supply: 5V (regulated)
- Current consumption: 310mA (typical)
- Data bit rate: 10kbps max.
- Matching receiver RX3A-869.500-10



BiM3A / BiM3B

The BiM3A is a half-duplex radio transceiver module for use in bi-directional data transfer applications at ranges up to 200m. Two frequency variants are available for licence-exempt operation in either the European 868-870MHz or North American 902-928MHz bands. Fully compatible with the TX3A transmitter and RX3A receiver.

- Dimensions: 33 x 23 x 5mm
- SAW front end filter and full screening
- Data rates up to 64kbps
- RSSI (standard) or carrier detect option
- Analogue and digital baseband

BiM3A

- 869.85MHz (Europe) or 914.5MHz (USA)
- Single channel, crystal controlled wideband transceiver
- Usable range up to 120m external, 30m in-building
- Transmit power: 1mW (0dBm)
- Supply 2.7V - 6V @ 8mA (TX), 11mA (RX)
- -100dBm sensitivity @ 1ppm BER, 64kbps version
- Receive spurs better than 50dB
- Extremely low local oscillator leakage, -120dBm typical
- 915MHz version conforms to FCC Part 15.249 (USA) and RSS-210 (Canada)

BiM3B

- 869.85MHz 5mW 100% duty cycle or 868.30MHz 25mW 1% duty cycle
- Crystal controlled PLL FM circuitry for both Tx and Rx
- RF power output +14dBm (25mW) on 868.30MHz, +7dBm (5mW) on 869.85MHz
- Receiver Sensitivity: -101dBm for 1ppm BER (64kbps), -104dBm for 1ppm BER (10kbps)
- Supply: 2.9V - 6V @ 35mA TX (25mW), 17mA TX (5mW), 11mA RX
- Usable range up to 300 metres external, 75 metres in building
- 869MHz version conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)



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TX2 / RX2

The TX2 and RX2 data link modules are a miniature PCB mounting UHF radio transmitter and receiver pair which enable the simple implementation of a data link at up to 160 kbps at distances up to 75m in-building and 300m open ground.

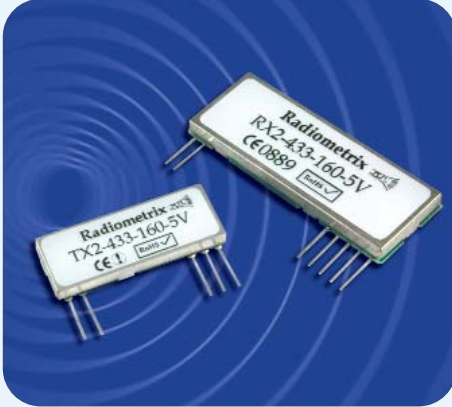
- 433.92MHz.
- Single channel, SAW stabilised wideband radios
- SAW front end receive filter
- Data rates up to 160kbps
- High DC to RF conversion efficiency

TX2

- Dimensions: 32 x 12.5 x 3.8 mm
- Transmit power +10dBm
- Supply: 3V/5V @ 6mA/10mA

RX2

- Dimensions: 48 x 18 x 4.5 mm
- -107dBm sensitivity @ 1ppm BER (14kbps version)
- -96dBm sensitivity @ 1ppm BER (160kbps version)
- Supply: 3 or 5V @ 13mA
- Receive spurious better than 50dB
- AF, digital baseband and Carrier Detect outputs
- Conform to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)



BiM2

The BiM2 is a WideBand FM UHF transceiver with high data rate, excellent receiver interference rejection and a very low profile. The module is ideal for enabling bi-directional wireless connectivity in battery powered or hand-held applications.

- Dimensions : 33 x 23 x 4mm. (Very low profile.)
- 433.92MHz.
- Single channel, SAW stabilised wideband radio
- SAW front end receive filter
- Data rates up to 160kbps
- Usable range up to 200m external, 50m in-building
- Fully screened
- Transmit power: +10dBm (10mW)
- Supply: 3.3 or 5V @ 14mA (transmit)
- 3.3 or 5V @ 18mA (receive)
- -93dBm sensitivity @ 1ppm BER (64kbps version)
- Receive spurious better than 60dB
- AF, digital baseband and Carrier Detect outputs
- <1ms receiver settling time
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)



SP2

The SP2 is a highly integrated intelligent transceiver module, that enables a radio network / link to be simply implemented between a number of host microcontrollers. The module combines a BiM2 equivalent transceiver and a 160kbps Fast Radio Packet Controller (FRPC). SP2 will append to the packet - preamble, frame sync byte and check sum and then code it for mark:space balance. SP2 will phase-lock, decode and error check the incoming data stream.

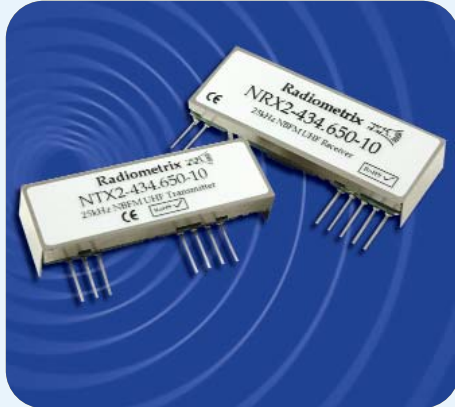
- Dimensions: 39 x 23 x 4mm . (Very low profile.)
- 433.92MHz.
- Reliable 50m in-building range, 200m open ground
- Free format packets of 1 - 60 bytes
- 6ms to transmit 60 byte packet
- Packet framing and error checking are user transparent
- Collision avoidance (listen before transmit)
- 8-pin wide (data, control) interface to host microcontroller
- Power save mode, <100µA (average)
- Built-in diagnostic / debug test modes
- Supply: 5V @ 25mA
- RF characteristics as BiM2 : -90 dBm sensitivity @ 1ppm BER
- 10mW transmit output power
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)



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NTX2 / NRX2



NTX2 transmitter and NRX2 receiver are 25kHz Narrow Band FM UHF modules offering a low power, reliable data link. These modules are ideally suited to those low power applications where existing single frequency wideband UHF modules have insufficient range:

- Standard frequencies: 434.075MHz, 434.650MHz and 458.700MHz
- Custom frequencies available in 433MHz (EU) and 458MHz (UK) bands
- Single channel, crystal controlled, narrowband (25kHz) radios
- SAW front end receive filter
- Data rates up to 10kbps
- Usable range over 500m

NTX2

- Dimensions: 43 x 15 x 8mm
- Transmit power: +10dBm (10mW)
- Supply 2.9 - 15V @ 18mA

NRX2

- Dimensions: 47 x 17 x 8mm
- Sensitivity: -118dBm (for 12dB SINAD)
- Supply : 2.9 - 15V @ 14mA
- AF, digital baseband and RSSI outputs
- Double conversion superheterodyne
- Receive spurious better than 50dB
- Adjacent Channel: -70dBm, blocking: -84dBm
- Conform to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

NiM2



The NiM2 module is a 25kHz Narrow Band FM UHF transceiver offering similar functionality to the BiM2A at up to 10kbps datarate, but with a far greater range. This makes the NiM2 ideally suited to those markets where existing UHF wideband solutions have insufficient range, or where a UHF band equivalent to the BiM1 is needed.

- Dimensions: 33 x 23 x 10mm. Fully screened
- Standard frequencies: 434.075MHz and 434.650MHz
- Single channel, crystal controlled, narrowband (25kHz) radio
- SAW front end receive filter
- Data rates up to 10kbps
- Usable range over 500m
- Also available as separate NiM2T transmitter and NiM2R receiver.
- Transmit power: +10dBm (10mW)
- Supply : 2.9 - 15V @ 20mA (transmit)
2.9 - 15V @ 15mA (receive)
- Sensitivity: -118dBm (for 12dB SINAD)
- Receive spurious better than 55dB
- Adjacent Channel: -70dBm, blocking: -80dBm
- AF, digital baseband and RSSI outputs
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

LMT2 / LMR2



The low-cost multi-channel 25kHz Narrow Band FM LMT2 transmitter and LMR2 receiver modules offers a low power, reliable data link in a very small footprint and rational 0.1" grid pinout. A software variant (-cx) is available which functions as a simple, single channel remote control actuator.

- Standard frequencies: 32 channels. 433.875 - 434.65MHz, 458.525 - 459.1MHz (UK band)
- Custom frequencies in 433MHz (EU) and 458MHz (UK) bands
- SAW front end receive filter. High stability TCXO reference
- Data rates up to 5kbps
- Usable range over 500m (10mW version)/ 1km (100mW version)
- Serial (32 channels) or parallel (16 channels) frequency selection
- User re-configurable via an RS232 interface

LMT2

- Dimensions: 33 x 23 x 9mm
- Transmit power: +10dBm (10mW)
- Supply: 3.1V - 15V (TX @ 10mW and RX),
4.1V - 15V (TX @ 100mW)

LMR2

- Dimensions: 46 x 23 x 9mm
- Sensitivity: -118dBm (for 12dB SINAD)
- Supply: 3.1 - 15V @ 20mA
- AF, digital baseband and RSSI outputs
- Quasi-DC coupled data recovery circuit
- Double conversion superheterodyne
- Receiver spurious better than 60dB
- Adjacent Channel: -60dBm, blocking: -84dBm
- FCC Part 90 Compliant (12.5kHz variant)
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

THE LEADING GLOBAL DEVELOPER OF ISM BAND RADIO MODULES

TX2M / RX2M



The high performance TX2M transmitter and RX2M receivers are UHF multichannel Narrow Band FM modules in an industry-standard pin out and footprint. This makes the TX2M/RX2M pair ideally suited to those long range telemetry and telecommand applications where existing wideband modules have insufficient range, or where multi-channel operation is needed in UHF frequency.

- Custom variants from 420MHz to 480MHz on any 5MHz band. (220MHz band versions also available)
- Multi channel, synthesized narrowband (25kHz) radios
- Stable TCXO reference
- Data rates up to 5kbps (optional 1200 baud modem integral to software)
- Usable range over 1km
- Serial (128 channels) or parallel (8 channels) frequency selection
- User re-configurable via an RS232 interface

TX2M

- Dimensions : 59 X 38.5 X 7 mm
- Transmit power: +20dBm (100mW) nominal
- Supply 4.5 - 15V @ 110mA
- Analogue and digital baseband inputs

RX2M

- Dimensions : 59 X 38.5 X 7 mm
- Sensitivity: -118dBm (for 12dB SINAD)
- Supply : 4.5 - 15V @ 13mA
- AF, digital baseband, noise squelch and RSSI outputs
- Double conversion superheterodyne
- Receive spuri better than 70dB
- Adjacent Channel: -65dBm, blocking: -85dBm
- FCC Part 90 Compliant (12.5kHz variant)
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

TX1M / RX1M



The high performance TX1M transmitter and RX1M receivers are VHF multichannel Narrow Band FM modules in an industry-standard pin out and footprint. This makes the TX1M/RX1M pair ideally suited to those long range telemetry and telecommand applications where existing wideband modules have insufficient range, or where multi-channel operation is needed in VHF frequency.

- Any custom band between 135MHz and 175MHz with 3MHz frequency range.
- Multi channel, synthesized narrowband (25KHz) radios
- Data rates up to 5kbps (optional 1200 baud modem integral to software)
- Usable range over 1km (@100mW)
- Serial (128 channels) or parallel (8 channels) frequency selection
- User re-configurable via an RS232 interface

TX1M

- Dimensions: 59 X 38.5 X 7 mm
- Transmit power: +20dBm (100mW) nominal
- Supply 4.5 - 15V @ 110mA (100mW version)
- Analogue and digital baseband inputs

RX1M

- Dimensions: 59 X 38.5 X 7 mm
- Sensitivity: -118dBm (for 12dB SINAD)
- Supply: 4.5 - 15V @ 13mA
- AF, digital baseband, noise squelch and RSSI outputs
- Double conversion superheterodyne
- Receive spuri better than 70dB
- Adjacent Channel: -65dBm, blocking: -85dBm
- FCC Part 90 Compliant (12.5kHz variant)
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

TLC2H / RLC2H / HVR2



The low-cost multi-channel 25kHz Narrow Band FM TLC2H transmitter and RLC2H receiver modules offer a low power, reliable data link in an industry-standard pin out and footprint.

- Standard frequencies: 32 channels. 433.875 - 434.65MHz
- Custom frequencies in 433MHz (EU) and 458MHz (UK) bands. 315MHz version also available
- SAW front end receive filter. High stability TCXO reference
- Data rates up to 5kbps
- Usable range over 500m
- Serial (32 channels) or parallel (16 channels) frequency selection
- User re-configurable via an RS232 interface

TLC2H

- Dimensions: 37 x 27 x 8mm
- Transmit power: +10dBm (10mW)
- Supply: 3.1-15V @34mA

RLC2H

- Dimensions: 50 x 30 x 10mm
- Sensitivity: -120dBm (for 12dB SINAD)
- Supply range: 3.7 - 15V @ 18mA
- AF, digital baseband and RSSI outputs

- Quasi-DC coupled data recovery circuit
- Receive spuri better than 60dB
- Adjacent Channel: -60dBm, blocking: -84dBm

HVR2

The HVR2 receiver uses a hybrid direct digital synthesiser in it's local oscillator to make it almost immune to mechanical vibrations below 500Hz. (It's intended use is in mechanically troublesome areas such as crane and machine tool control). It otherwise resembles the RLC2H.

- Dimensions: 50 x 30 x 10mm
- Sensitivity: -118dBm (for 12dB SINAD)
- Supply range: 3.7 - 15V @ 30mA
- AF, digital baseband and RSSI outputs
- Channel switching: <5ms for HVR2
- Receive spuri better than 55dB
- Adjacent Channel: -55dBm, blocking: -84dBm
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

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TR2M



The TR2M is the transceiver combination of the TX2M and RX2M. It offers a low power, reliable data link in an industry-standard pin out and footprint. This makes the TR2M ideally suited to those low power applications where existing wideband transceivers have insufficient range, or where multi-channel half-duplex operation is needed. Two versions are available, covering the 458.5- 459.1MHz UK band (at 100mW) and the European 433.05-434.79MHz band (at 10mW).

- Dimensions: 59 x 38 x 10 mm
- Any frequency from 420MHz to 480MHz (any 5MHz segment). (220MHz band version also available)
- Multi channel, synthesized narrowband (25kHz) transceiver
- Stable TCXO reference
- Data rates up to 5kbps (optional 1200 baud modem integral to software)
- Usable range over 1km
- Serial (128 channels) or parallel (8 channels) frequency selection
- User re-configurable via an RS232 interface
- Transmit
- Transmit power: +20dBm (100mW) nominal
- Analogue and digital baseband inputs
- Supply 4.5 - 15V @ 110mA (transmit)
4.5 - 15V @ 27mA (receive)

Receive

- Sensitivity: -118dBm (for 12dB SINAD)
- AF, digital baseband, noise squelch and RSSI outputs
- Double conversion superheterodyne
- Receive spuri better than 70dB
- Adjacent Channel: -60dBm, blocking: -85dBm
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

TR1M



The TR1M is a VHF Narrow band (25kHz) half duplex transceiver module intended for the UK allocation at 173.2 - 173.325 MHz. TR1M offers a low power, reliable data link in an industry-standard pin out and footprint. This makes the TR1M ideally suited to those low power applications where existing wideband modules have insufficient range, or where multi-channel operation is needed.

- Dimension: 53 x 32 x 10.5mm
- High performance double superhet, 128 channel PLL synthesizer with TCXO
- Operating frequency: 173.2MHz - 173.325MHz
- 128 serial select or 8 parallel select channels
- Any 1MHz band from 130-180MHz
- Data rates up to 5 kbps for standard module
- Transmit power: +20dBm (100mW) nominal (factory adjustable 1 - 100mW)
- Receiver sensitivity: -118dBm (for 12 dB SINAD)
- Supply range: 4.5V - 16V @ 110mA TX (@100mW), 27mA RX
- RSSI, automatic noise squelch, analogue and digital baseband outputs
- Incorporate a 1200baud dumb modem
- User re-programmable via an RS232 interface
- Usable range over 1km (100mW version)
- FCC Part 90 Compliant (12.5kHz variant)
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

AFS2



AFS2 amplifier module is intended to increase the transmitted power of a Radiometrix multi channel TR2M transceiver module. It provides transmit and receive paths, and can be simply 'dropped into' the aerial connection. The AFS2 may be usable with other 100mW RF output modules.

- Dimension: 33 x 23 x 9 mm
- Standard frequency: 458MHz UK SRD allocation
- Any 10MHz band within 420-470MHz
- Transmit power: +27dBm (500mW) nominal
- Supply range: regulated 5V @ 250mA TX, 2mA RX
- Receive path loss: <1dB (bi directional)
- RF Input: 100mW

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SMX2



SMX2 is small multi-channel UHF transceiver operating on 433.05MHz-434.79MHz European licence exempt band. SMX2 offers a fast-route to custom frequency on any UHF band from 431MHz to 437MHz with 25kHz channel spacing.

- Dimensions: 53 x 32 x 12mm
- Operating frequency: 433.05-434.79MHz
- Custom variants from 431 - 437MHz
- Multi channel, synthesized, narrowband (25kHz) transceiver
- SAW front end receive filter. High stability TCXO reference
- Data rates up to 5kbps (optional 1200 baud modem integral to software)
- Usable range over 500m
- Serial (128 channels) or parallel (8 channels) frequency selection
- User re-configurable via an RS232 interface
- Transmit power: +10dBm (10mW) nominal. (Factory Adjustable 2 - 40mW)
- Supply: 4.1 - 15V @ 35mA (transmit, 10mW) 4.1 - 15V @ 25mA (receive)
- Sensitivity: -120dBm (for 12dB SINAD)
- Double conversion superheterodyne
- Receive spurious better than 60dB
- Adjacent Channel: -60dBm, blocking: -85dBm
- AF, digital baseband and RSSI outputs
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)
- 25mW version available for Australian frequencies

SMX1



SMX1 is small multi-channel VHF transceiver operating on 173.200MHz-173.325MHz band. SMX1 offers a fast-route to custom frequency on any VHF band from 130MHz to 180MHz with 25kHz channel spacing.

- Dimensions: 53 x 32 x 12mm
- 151MHz, 173MHz (standard version)
- Custom variants from 130 - 180MHz (in any 1MHz band)
- Multi channel, synthesized, narrowband (25KHz) transceiver
- Data rates up to 5kbps (optional 1200 baud modem integral to software)
- Usable range over 1km
- Serial (128 channels) or parallel (8 channels) frequency selection
- User re-configurable via an RS232 interface
- Transmit power: +10dBm (10mW) nominal. (Adjustable 1 - 50mW)
- Supply: 4.1 - 15V @ 40mA (10mW) to 65mA (50mW) 4.1 - 15V @ 20mA (receive)
- Sensitivity: -120dBm (for 12dB SINAD)
- Double conversion superheterodyne
- Receiver spurious better than 65dB
- Adjacent Channel: -65dBm, blocking: -85dBm
- AF, digital baseband and RSSI outputs
- 173MHz, 10mW versions conform to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)
- 50mW version conforms to AS/NZS 4268:2003

RMX2



The RMX2 is an ETSI EN 300 220-3 compliant UHF FM narrow band semi-duplex radio data module. It is a high performance transceiver designed for use in industrial applications requiring long range, high performance and reliability.

- Dimension: 30 x 50 x 9 mm
- Standard frequencies: 315MHz, 433MHz, 458MHz
- Programmable RF channel
- Fast TX/RX switching time (5ms)
- Supply range: 3 - 15V @ 35mA TX, 24mA RX
- Data bit rate: 10kbps max
- Transmit power: +10dBm (10mW) RF power
- Receiver sensitivity: -118dBm (for 12 dB SINAD)
- Class one receiver performance
- RSSI, analogue and digital baseband outputs
- Usable range over 500m
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

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UHX1



UHX1 is small dual frequency multi-channel narrow band (25kHz) VHF transceiver with up to 500mW RF power output. The dual frequency capability allows UHX1's transmitter section to be operated on one frequency while receiver frequency on another.

- Dimension: 67 x 30 x 12mm
- High performance double superhet, 128 channel PLL synthesizer
- Standard frequency: 144MHz band
- Any 2MHz segment in 140- 175MHz
- 128 channels selected by serial interface
- 16 channels selected by parallel interface
- Supply range: 5V regulated transmit, 3.1 - 15V receive,
- Current consumption: 330mA @ 500mW TX, 25mA RX
- Data bit rate: 5kbps max. (standard module)
- Transmit power: 500mW (+27dBm) nominal. Adjustable 1 – 500mW
- RF power output adjustable via serial command
- Receiver sensitivity: -118dBm (for 12 dB SINAD)
- RSSI, analogue and digital baseband
- Digital RSSI output
- Incorporate a 1200baud modem
- User re-programmable via RS232 interface
- Usable range over 1km
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

USX2



USX2 is small multi-channel narrow band UHF transceiver operating on 315MHz band. USX2 offers a fast-route to custom frequency on any UHF band from 314MHz to 316MHz with 25kHz channel spacing.

- Dimension: 50 x 30 x 12mm
- High performance double superhet, 128 channel PLL synthesizer
- Standard frequency: 314 - 316MHz
- 433MHz (European) and 458MHz (UK) band modules coming soon
- 128 channels controlled via RS232 interface
- 16 channels selected by parallel interface
- Supply range: 3.6 - 15V @ 100mA (@100mW) TX, 25mA RX
- Data bit rate: 5kbps max. (standard module)
- Transmit power: 100mW (+20dBm) nominal; Adjustable 0.1 – 100mW
- RF power adjustable via serial command
- Receiver sensitivity: -118dBm (for 12 dB SINAD)
- Usable range over 500m
- RSSI, analogue and digital baseband outputs
- Digital RSSI output
- Incorporate a 1200baud modem
- User re-programmable via RS232 interface
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

RX1L



The RX1L receiver modules have very low current consumption (1mA) and it offers a reliable data link in an industry-standard pin out and footprint. This makes the RX1L ideally suited to those low power applications where existing narrow band modules are not suitable for prolonged battery powered application. Two versions on the 151.300MHz and 173.225MHz frequencies are available. RX1L is compatible with the Radiometrix TX1 and BiM1T transmitters.

- Conforms to EN 300 220-3 and EN 301 489-3.
- Fully screened. Low profile
- Very low current consumption
- Long battery life

Applications

- Solar powered remote installation
- Data loggers
- Industrial telemetry and telecommand
- In-building environmental monitoring and control
- High-end security and fire alarms

Technical Summary

- Dimensions: 59 x 38 x 7mm
- Operating frequency: 151.300MHz or 173.225MHz
- Supply range: 3.1V - 9V
- Current consumption: 1mA
- Data bit rate: 5kbps max. (standard module)
- Receiver sensitivity: -120dBm (for 12dB SINAD)

THE LEADING GLOBAL DEVELOPER OF ISM BAND RADIO MODULES

TDL2A / TDH2



The TDL2A is a simple to use 9600 baud OEM radio modem in a very small footprint. When using this device, the user need not worry about transmitter switching, valid data identification or datastream buffering. All these functions are dealt with by the unit. Synchronisation and framing words in the packet prevent the receiver outputting gibberish in the absence of signal, or presence of interference. The unit provides a completely transparent half-duplex link.

TDL2A

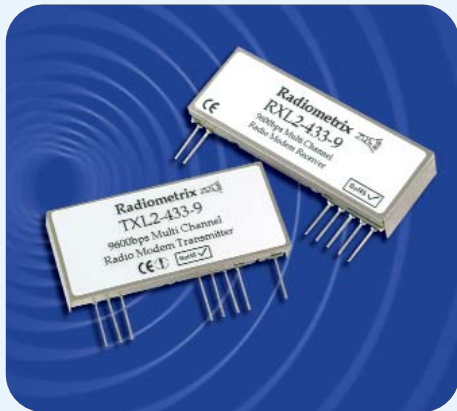
- Dimensions: 33 x 23 x 7mm. Fully screened
- 1 of 5 programmable operating frequencies: 433.285, 433.605, 433.925 (default), 434.245 and 434.565MHz.
- Multichannel wideband radio modem
- SAW front end receive filter
- Data rate: 9600 baud asynchronous (TTL level inverted RS232)
- 1 of 8 programmable addresses
- Usable range over 200m
- Transmit power: +10dBm (10mW)
- Supply: 5V @ 28mA (transmit) 5V @ 22mA (receive/idle)
- <14 mS end to end link latency
- -107dBm sensitivity @ 1% BER

- Receive spurious better than -50dB
- Adjacent channel -65dB (+/- 320KHz). Blocking 80dB
- 'valid data received' output provided
- An interface board (with MAX232 type buffer, 9 way D connector, 5V voltage regulator and SMA RF connector) is available.
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

TDH2

- 25mW version (5V @ 50mA TX, 22mA RX) compliant with Australian, New Zealand standard AS/NZS 4268:2003 is available
- 50mW version is also available

TXL2/RXL2



The TXL2 and RXL2 modules are 9600baud simplex multi channel OEM radio modems in a Radiometrix SIL standard footprint, operating on European 433MHz ISM band. The TXL2/RXL2 pair act as a transparent serial cable to attached host. Unlike raw FM radio modules (e.g. TX2A/RX2A), TXL2/RXL2 will take care of preamble, synchronisation, bit balancing and error checking along with automatic noise squelching.

- Standard frequency: 433.05 – 434.79MHz European band
- 5 serial select wideband channels
- High quality, stable crystal reference
- Low noise synthesiser / VCO
- Serial modem baud rate at 9600bps (simplex)
- Addressable point-to-point
- Set-up and configuration using HyperTerminal
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

RXL2:

- Dimension: 47 x 17 x 7 mm
- SAW front-end filter
- Multi-stage ceramic IF filtering
- Single conversion superhet
- Supply: 5V @ 22mA receive/idle
- Receiver sensitivity: -107dBm (for 1% BER)
- 32 byte data buffer
- Adjacent channel rejection: 60db @ ±320kHz
- Blocking: >75dB

TXL2:

- Dimension: 43 x 19 x 7 mm
- Modulation: 16kbps bi-phase FSK
- Supply: 5V @ 28mA transmit
- Transmit power: +10dBm (10mW)

TDM2



The TDM2 is a simple 433MHz band radio data modem. It provides a medium ranged half duplex, transparent data link between a pair of 9600 baud RS232 ports.

- Dimension: 94 x 107 x 33mm (excluding connectors)
- Direct DCE interface to 9600 baud RS232 serial port
- 5 serial select wideband channels (in the 433.05 – 434.79MHz European band)
- Supply: 9V - 15V @ 30mA TX, 27mA RX, 20µA disabled
- Onboard regulator can provide 5V, 200mA supply to power a DTE (e.g. Barcode scanner)
- Transmit power: +10dBm (10mW) nominal
- Sensitivity: -105dBm for 1% data error
- Addressable point-to-point
- Setup is simple as Plug-and-Play
- Set-up and configuration using HyperTerminal
- Short Helical antenna with SMA connector.
- LED indicators for Power on, TX and RX
- Interoperable with TDL2A, TDH2, TXL2, RXL2
- 25mW version available for Australia/New Zealand
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

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RPM1



The VHF Radio Packet Modem (RPM1) is a low cost intelligent radio packet modem that enables a long range two way radio network/link to be simply implemented between a number of digital devices. The RPM1 uses addressable data packets with error checking and packet acknowledge / retransmit to achieve a reliable transparent wireless data link. Built for ease of use and rapid installation, the serial interface ensures direct connection to microprocessors or to RS232 port via RS232 driver while remote configuration enables post installation setup of the modem.

- Dimensions: 39 X 23 X 15 mm
- Integrates a BiM1 transceiver: see separate entry for radio specifications
- Standard frequencies 151.300MHz (100mW), 173.225MHz, 173.250MHz (10mW)
- Addressable point-to-point mode
- Point-to-Multipoint and broadcast modes
- Inverted RS232 interface at 5V
- DTE speed 600-115200bps
- Overall throughput: 3.7kbps with ACK and 5.3kbps without ACK
- Single 5V supply
- Flow control - Hardware (CTS), none
- Usable range over 1km
- Built-in command line configuration
- Built-in RF link diagnostics
- Remote over-air unit configuration
- Low operating current, Auto standby mode
- Available as RPM1T transmitter and RPM1R receiver for one way communication
- Conforms to European ETSI EN 300 220-3 and EN 301 489-3 (173MHz, 10mW version)
- Conforms to Australian/New Zealand AS/NZS 4268:2003 (at 100mW)

RPM2A



The UHF Radio Packet Modem (RPM2A) is a low cost intelligent radio packet modem that enables a two way radio network/link to be simply implemented between a number of UARTs or serial ports. The RPM2A uses addressable data packets with error checking, packet acknowledgements and retransmissions to achieve a reliable transparent wireless data link.

- Dimension: 39mm X 23mm X 10mm
- Inverted RS232 interface at CMOS level from 600-115200bps
- Standard frequencies: 433.92MHz or 434.42MHz
- Supply: regulated 5V or 3V @ 15mA
- Low operating current, Auto standby mode
- Transmit power: +10dBm (10mW) nominal
- Sensitivity: -100dBm for 1ppm BER
- Flow control: Hardware (CTS), None
- Overall throughput: 17kbps with ACK
28kbps without ACK
- Addressable point to point
- Point to multi point and broadcast modes
- Built-in command line configuration
- Remote over-air unit configuration
- Built-in RF link diagnostics
- Set-up and configuration using HyperTerminal
- Usable range up to 300m
- Conforms to ETSI EN 300 220-3 (Radio) and ETSI EN 301 489-3 (EMC)

RPM3/RPM3B



The UHF Radio Packet Modem (RPM3) is a low cost intelligent radio packet modem that enables a two way radio network/link to be simply implemented between a number of digital devices using shorter antennas. The RPM3 uses addressable data packets with error checking and packet acknowledge /retransmit to achieve a reliable transparent wireless data link. Built for ease of use and rapid installation, the serial interface ensures direct connection to microprocessors or to RS232 port via RS232 driver while remote configuration enables post installation setup of the modem.

- Dimensions: 39 X 23 X 10 mm
- Integrates a BiM3A transceiver: see separate entry for radio specifications
- Standard frequencies: 868.30MHz (EU), 869.85MHz (EU), 914.50MHz (USA)
- Addressable point-to-point mode
- Point-to-Multipoint and broadcast modes
- Inverted RS232 interface at 5V or 3V CMOS level
- DTE speed 600-115200bps
- Overall throughput: 17kbps with ACK and 28kbps without ACK
- Supply: 5V or 3V regulated supply 15mA during data streaming at maximum rate
- Flow control - Hardware (CTS), none
- Usable range up to 200m (650ft.)
- No Duty Cycle Restriction
- Built-in command line configuration
- Built-in RF link diagnostics
- Remote over-air unit configuration
- Low operating current, Auto standby mode
- 869MHz version conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC) 915MHz version conforms to FCC Part 15.249 (USA)

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SPM2



The UHF SpacePort Modem (SPM) is a highly integrated intelligent radio packet modem that enables a radio network / link to be simply implemented between a number of UARTs or serial ports. The SPM uses addressable data packets with error checking, packet acknowledgements and re-transmissions to achieve a reliable wireless data link. Built for ease of use and rapid installation, the serial interface ensures direct connection to microprocessors or an RS232 port via RS232 line driver/receiver while remote configuration enables post installation set up of the modem.

- Dimensions: 39 x 23 x 6.5 mm
- 433.92MHz
- Addressable point-to-point mode
- Point-to-multipoint and broadcast modes
- Inverted RS232 interface at CMOS level from 600bps to 115200bps
- Overall throughput of 28kbps (acknowledged) and 55kbps (unacknowledged)
- Flow control - Hardware (CTS)
- Supply: 5V (regulated) @ 40mA (streaming), 15mA (stand by), 400uA (power-down)
- Useable range up to 200m outdoor & 50m in-door
- RF characteristics as BiM2:
-95 dBm sensitivity @ 1ppm BER
- 10mW transmit output power
- Conforms to ETSI EN 300 220-3 (radio) and EN 301 489-3 (EMC)

QR96



The Quasi DC Recovery circuit (QR96) can be used to improve data recovery of receiver if the raw data is transmitted without any bit balancing. The QR96 measures the minimum and maximum levels of the AF output of the receiver, averages that and compares the original AF output signal with it. The module can be used in applications where raw (non-bit balanced) data need to be transmitted and received between two UARTs.

- Dimension: 18.5 x 10 x 5.5mm
- Supply: 3 to 5V
- Data bit rate: up to 9.6kbps
- Recovery of data signals with frequencies down to 2Hz
- Tolerates time between bit transitions as long as 250ms
- Permits non-bit balanced data stream like straight ASCII
- Improves link margin by about 6dB
- Customisable to different data, preamble timing requirements (e.g. NMEA sentences)
- Pin outs and foot print compatible with Radiometrix SIL Receivers

ANTENNAS



Radiometrix supplies antennas and connectors for low power radio at competitive prices. Products available include:

- 1/4 Wave-length Monopole Antennas With BNC/SMA Connectors
- Helical Antennas with BNC/SMA connectors
- VHF options - 151, 169, 173MHz
- UHF options - 433, 458, 868, 914MHz
- Other frequencies available for special order
- Matching connectors can also be purchased separately

WIRELESS SOLUTIONS FOR

- INDUSTRIAL /COMMERCIAL TELEMETRY & TELECOMMAND
- INDUSTRIAL CONTROL • DATA LOGGING • AUTOMATIC METER READING
- TRACKING/TAGGING • ENVIRONMENTAL CONTROL • HIGH-END SECURITY & ALARMS

CONTROL 44 / CONTROL 124



Control44 is a simple 4 bit address, 4 bit data encoder / decoder, specifically designed to be used in RF remote control applications. It uses a 1kbps differential Manchester datastream with preamble. It is available in 20pin SSOP, 18pin SOIC and PDIP packages. This device can operate in either Encode or Decode mode

- Custom address, data bit variations available subject to minimum order quantity
- Single packetised transmission for fast activation
- Adequate preamble to settle receiver data slicer, and for transmitter power-up time requirement
- Suitable to be used with Narrow Band FM radio modules
- Synchronisation codes and check sum to reduce false triggering on noise
- Ceramic resonator or crystal oscillator up to 20MHz
- Extracts maximum range capability of radio modules
- Data rate up to 5.6kbps
- Draws <2mA without external load
- Minimum external component requirement
- Supply: 3.0V-5.5V (standard), 2.0V-5.5V (low voltage)

CTR44

- 4 wire, push button and latched push button modes
- 16 different remotes with 4 controls each

CTR124

- 4 bit address and 12 bit data
- 16 different remotes with 12 controls each

i9600



The I9600 is a 9600baud half-duplex serial modem IC suitable for use with wideband receivers, transmitters and transceivers. It takes care of preamble, synchronisation, bit balancing and error checking and enables a transparent radio data link to be established between radio devices.

- Supply, temperature: 5V, -40C +85C
- Maximum usage of the range capability of an RF module
- Adequate preamble to settle data slicer in the receiver
- Extra wake up preamble to allow for transmitter power up time requirements
- Data bits are encoded as 3 byte packets with half-cycle tone duration of 62.5 μ and 31.25 μ
- Suitable to be used with Wide Band FM radio modules
- Serial modem baud rate at 9600bps (half-duplex)
- Addressable point-to-point

NBEK-000



NBEK-000 is a 1200baud half-duplex serial modem controller suitable for use with 25kHz Narrow Band receivers, transmitters and transceivers. It takes care of preamble, synchronisation, bit balancing and error checking and enables a transparent radio data link to be established between radio devices.

- Supply, temperature: 5V for standard version (-40°C to +85°C)
- Maximum usage of the range capability of an RF module
- Adequate preamble to settle data slicer in the receiver
- Extra wake up preamble to allow for transmitter power up time requirements for synthesiser based modules
- Data bits are encoded as 3 byte packets with half-cycle tone of varying duration.
- Suitable to be used with Narrow Band FM radio modules
- Serial modem baud rate at 1200bps (half-duplex)
- Incorporates Narrow Band Evaluation Kit operating modes

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TDi2/ TDL2A EVALUATION KIT



An OEM board with the necessary interface circuit and connectors to permit evaluation of the TDL2A for a user application, or to be used as a complete Radio modem in the user's own casing. The interface board features an on-board Multi channel TDL2A-433-9 OEM serial modem, MAX232 RS232 driver, 9 way D connector, 5V voltage regulator and SMA RF connector, hence requires just a Voltage supply to power up and operate without any additional interface circuitry. The TDL2A modules would be soldered directly on to the interface board for better grounding and to improve RF performance.

TDL2A EVAL KIT

- Dimensions: 70 x 61 x 22 mm (or 70 x 33 x 19mm without PP3 battery location)
- Plug and Play Radio Modem
- Direct DCE interface to 9600 baud RS232 serial port
- Onboard regulator can provide 5V, 200mA supply to power a DTE (e.g. CCD Barcode scanner)
- Busy indicator LED
- Short Helical antenna with SMA connector, or terminal block with whip
- Ideal for range testing and site survey
- Setup and configuration using any terminal program.
- Supply: 5.5 - 15V @ 40mA (or on board PP3 battery)
- RS232 driver and DB9F connector for direct interface to PC serial port

TDi2

- Dimensions: 61 mm x 33mm (excluding helical antenna length of 55mm)
- Serial modem baud rate at 9600bps (half-duplex)
- Addressable point-to-point
- 5 serial select wideband channels
- Access to internal diagnostic/Test modes using HyperTerminal
- Signal LED for visual indication of valid code received
- Setup is simple as Plug-and-Play
- Set-up and configuration using HyperTerminal
- Conforms to EN 300 220-3 and EN 301 489-3

NB EVALUATION KIT



Narrow Band Evaluation Kit (NBEK) can be used to evaluate all Narrow Band Multi-channel and Single frequency modules. Radio modules can be assessed for their suitability in terms of operating range, functionality, reliability and robustness in a multi-user environment with several other modules on different channels. Built in Control44, I1200 modes allow user to evaluate the performance of Radiometrix narrow band modules in a typical Remote Control and data transmission application in an industrial environment.

- RF module range testing
- Noise and Interference Identification
- Antenna Type Evaluation
- Analogue and digital data transmission
- 4 Data Channel Remote Control
- 1200 Baud Dumb Modem
- Setup is simple as Plug-and-Play
- RS232 Serial Port Interface for Frequency/Channel configuration
- RS232 Serial Port Interface for 1200 baud dumb modem
- Access to internal diagnostic/Test modes using HyperTerminal
- Access to each data/control pins for external interface or testing

Contents:

- 2 Controller Board
- 2 Carrier Boards according to Modules ordered separately
 - a. BiM1, NiM2, BiM2, BiM3B, SMX1, SMX2 Carrier Board
 - b. TX1M/RX1M, TX2M/RX2M, TR2M Carrier Board
 - c. LMT2, LMR2 Carrier Board
 - d. TLC2, RLC2 and HVR2 Carrier Board
 - e. SIL transmitter, receiver Carrier board

UNIVERSAL EVALUATION KIT



This evaluation kit can be used to evaluate all the Radiometrix VHF/UHF single channel transmitter, receiver and transceiver modules (SIL and BIM packages). LED indicators are provided to show system status and to facilitate range testing and site surveys. The board is controlled by the Eval-RPC chip and incorporates several useful diagnostics & debug modes. Link-selectable 9.6kbps or 64kbps data rate caters for all single frequency modules in the Radiometrix range.

- Range testing
- Target environment testing
- Noise and interference identification
- Antenna evaluation
- TX1H/TX1/RX1/CVR1, TX2/RX2/RX2A, TX3A/RX3A and BiM1/2/3A, NTX2/NRX2 hardware test
- Transient analysis
- Communication eye diagram
- Analogue and digital data transmission
- Received signal strength indicator (RSSI) meter
- Linking external hardware directly or via on board Eval RPC
- Responses up to 9.6kbps (A) or 64kbps (F)

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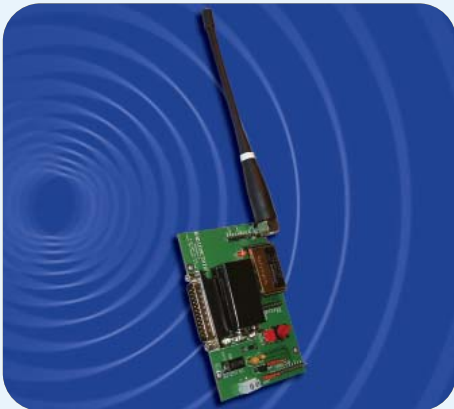
CONTROL 44 EVALUATION KIT



The Control44 Evaluation Kit enables the user to evaluate the Control44 Encoder/Decoder and appropriate single frequency Radiometrix modules for a wireless remote control system. Radio modules can be assessed for their suitability in terms of range, price and operating frequency band.

- 4-bit address, 4 bit data select switches
- 4 relays to control mains powered devices rated up to 8A, 250VAC/30VDC
- Visual indication of valid code received and active relays
- Push button for momentary control of relays
- Momentary or Latched outputs
- Setup is simple as Plug-and-Play
- Ideal for RF Remote Control Demonstration
- PP3 9V battery powered. Terminal block for use with external power supply

SPACEPORT EVALUATION KIT



SpacePort Evaluation Kit can be used to evaluate the Radiometrix SpacePort, Radio Packet Controller modules. LED indicators are provided to show system status and to facilitate range testing and installation site surveys. Internal EEPROM values can be configured through parallel port connection to PC using RPC Development Kit Software.

- Direct interface to Parallel port
- Visual indications of operational mode and test results through LEDs
- Access to internal diagnostic/Test modes and EEPROM using RPC Development Kit Software
- All I/O are brought out with adjacent headers for developing applications and analyzing signals
- PP3 9V Battery operation makes the board portable for easy wireless evaluation

SPACEPORT MODEM EVALUATION KIT



The SpacePort modem evaluation board enables the RPM1, SPM2, RPM3 to become a complete radio modems with DCE type RS232 interface.

- Direct interface to RS232 serial port
- Onboard regulator can provide 5V, 1A supply to power a DTE (e.g. barcode scanner)
- Visual indications of operation through LEDs
- Access to internal diagnostic / test modes using HyperTerminal
- Access to each data/control pins for external interface or testing
- Set-up and configuration using HyperTerminal
- Built-in command line configuration
- PP3 9V battery powered. DC jack and terminal block provided for external supply

THE LEADING GLOBAL DEVELOPER OF ISM BAND RADIO MODULES

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