

## One form factor – pin compatible – different radio technologies

Radiocrafts offers full flexibility for customers who are looking for different radio solutions. It is now possible to make one PCB design and combine several radio protocols and frequencies by only changing the radio module and the antenna length. Only minor adjustments in the host controller firmware are necessary to swap between different radio protocols. The footprint compatible solutions, including TinyMesh, Wireless M-Bus, ZigBee and SIGFOX; are giving a unique flexibility.

### Demo Kits



Demo Kits are available for all Radiocrafts' modules. The Demo Kit contains two Demo Boards that will make a wireless link «out of the box», and provide easy access to the module's I/O-pins. Connect the Demo Boards to a computer with terminal program, or to a microcontroller with an UART interface, and send and receive wireless data. The Demo Kits are ideal for rapid prototyping, proof of concept and range evaluation.

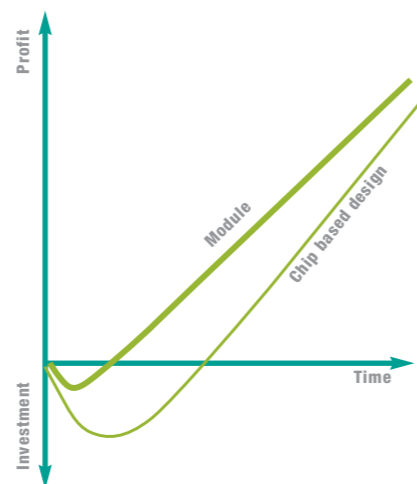


### RC-Tools – making RF easy

RC-Tools is a powerful and easy to use PC suite that helps you during test, development and deployment of the Radiocrafts modules. The tools package contains a Configuration and Communication Tool (CCT), a Spectrum Analyzer (SA) and a system Deployment Tool (DT). For Wireless M-Bus a MBUS\_DEMO meter emulator and packet sniffer is available. The RC-Tools is available for free and immediate download from our web site.

### About Radiocrafts

Radiocrafts is a leading RF module design and manufacturing company. Radiocrafts' standard RF modules provide compact, easy-to-use, low cost, low power and high performance RF solutions for a large number of wireless applications using license-free ISM bands. Using modules OEM manufacturers without RF design knowledge can easily add wireless technology into their design, reducing time-to-market, cost of design, test and compliance approvals. Radiocrafts also offers custom and application specific product development, supporting customers from initial project ideas to volume product delivery.



### Module benefits

- >>> Shorter time to market.
- >>> Proven RF performance.
- >>> Conformance with world-wide RF regulations.
- >>> No RF competence required.
- >>> Lower Total Cost of Ownership (TCO).

### Identify your solution

**In which country shall this equipment operate?** Which ISM frequencies are available in the region?

**How many nodes, and do all nodes communicate with all other nodes?** Is mesh network necessary, or will point-to-point (multipoint) do the job?

**What is the distance between nodes that need to communicate?** Low frequency and narrow bandwidth gives longer range.

**What data rate is necessary for the application?** Higher data rates require wider channels.

**Shall the nodes operate on battery?** What is max acceptable power consumption?

### Radiocrafts AS

Sandakerveien 64  
NO-0484 Oslo Norway  
Tel +47 4000 5195  
sales@radiocrafts.com  
www.radiocrafts.com

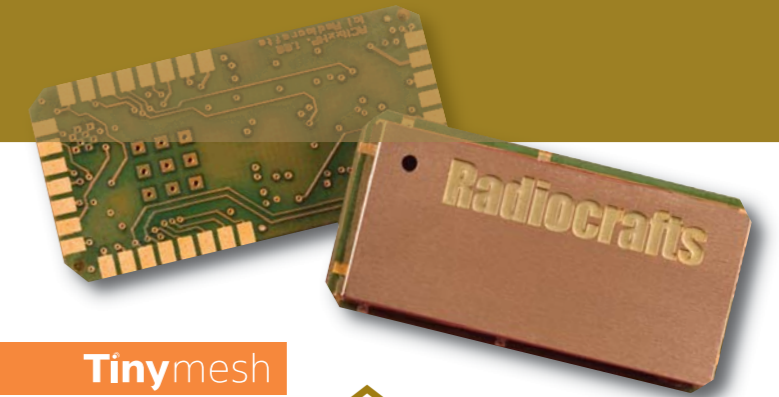


# Radiocrafts

## Embedded Wireless Solutions

### Product Selection Guide





**Ease**  
 >>> Plug and play

**Easy to use:**  
 Data in – RF out  
 Cable replacement

**Range**  
 >>> More than 20 km

**Long range:**  
 More than 20 km  
 Increased link margin

**Size**  
 >>> World's smallest modules

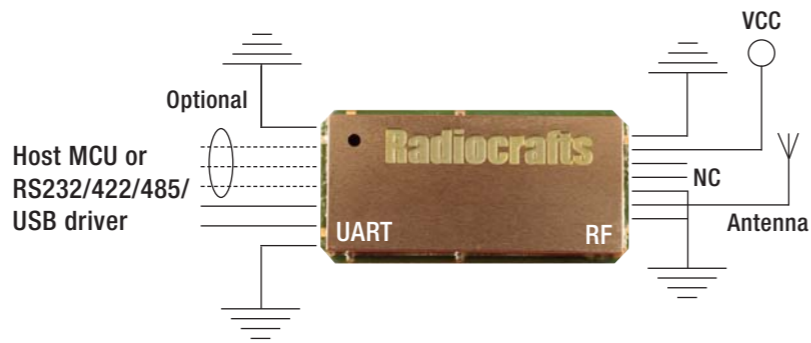
**Small size:**  
 Surface mounted «radio modem»  
 Completely shielded

**Reliable**  
 >>> Proven in harsh industrial applications

**Reliable:**  
 Narrowband  
 High performance

## SOLUTIONS

- >>> Automatic Meter Reading (AMR)
- >>> Wireless Sensor Networks (WSN)
- >>> Internet of Things (IoT)
- >>> Remote control and telemetry
- >>> Home, Building and Industrial automation
- >>> Wireless alarms and security
- >>> Telemetry systems
- >>> Fleet and Asset Management



## SERVICES

- >>> Custom hardware and software designs
- >>> Application specific designs
- >>> Standard module modifications
- >>> Turn-key solutions and volume deliveries
- >>> Gateway solutions for GPRS/Ethernet, RS232/RS485 and USB
- >>> Pilot- and demo systems for control and monitoring

**Technical Support**

FREE review of schematics and PCB layout.

FREE support for optimum antenna design.

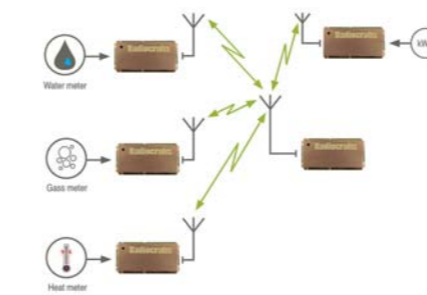
QUICK support response time.

support@radiocrafts.com

## Low Cost – general purpose

- Wideband modules for low cost applications
- Point to point, point to multipoint protocol (RC232)
- 433-2450 MHz
- Transparent UART data interface
- High Power modules for extended range
- Small size (12.7 x 25.4 x 3.5 mm)
- Compact shielded module for SMD
- Pin compatible variants for EU, US, India, World-wide
- No external components required, only power supply and antenna
- Up to 4 km range (Line of Sight)

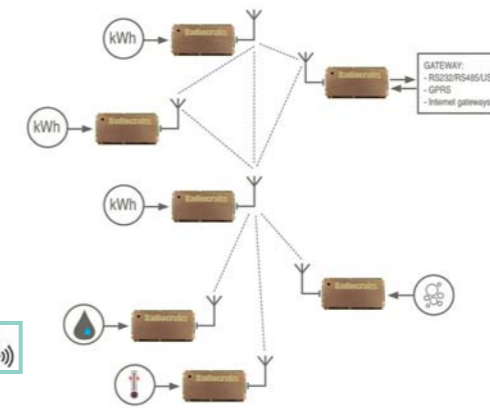
## Wireless M-Bus



- Full feature Wireless M-Bus stack embedded
- EN 13757-3:2013, EN 13757-4:2013 and EN 13757-5:2013
- 868 MHz (C,R,S,T modes), 169 MHz (N mode)
- 433, 865, 915, 923 MHz for non-EU operation
- Meter (slave), Concentrator (master) and Repeater functionality
- Master module with 256 slaves, auto-message generator
- AES-128 hardware encryption
- Designed for Open Metering System (OMS) specification
- Designed for NTA8130/DMSR/SMR
- Special support for CIG (Italy) TS 11291-11-4
- UART interface for communication and configuration
- Pulse counter and automatically scheduled transmissions (MPC variant)
- Ultra low power modes for battery lifetime > 15 years
- High power option (27/30 dBm) in same footprint
- Compact shielded module 12.7x25.4x3.3 mm for SMD mounting
- Designed for EX compliance

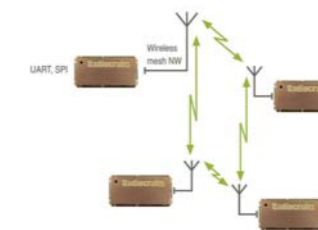


## Tinymesh



- Multi-hop mesh network protocol
- Self-forming, self-healing and self-optimizing
- Bi-directional with acknowledge and retransmissions
- Configurable analog and digital input/output
- Transparent serial or packet mode communication
- Individual, Group or Broadcast addressing
- Available from 169 – 2450 MHz, wideband or narrowband
- Standard form factor (12.7 x 25.4 x 3.3 mm)
- AES 128 encryption
- LBT (Listen Before Talk)
- Sleep mode and End Device operation
- Seamless integration with cloud service

## IEEE 802.15.4. ZigBee 6LoWPAN



- IEEE 802.15.4 module for ZigBee and 6LoWPAN applications
- ZigBee Network Module with Smart Energy profile support
- Compact shielded module, 12.7 x 25.4 x 3.5 mm size
- Conforms with world-wide RF regulations
- Supported network topologies: Star, Mesh
- High power option in the same footprint
- Integrated antenna or RF connector options
- Pin compatible with other Radiocrafts modules

Radio modules offer the fastest way to wireless connectivity for your product. With embedded protocol and an easy-to-use interface a compact RF solution is added to your design in the most cost-competitive way.

## Narrowband

- Narrowband modules for long range and high immunity / selectivity
- 169 – 870 MHz, 12.5 and 25 kHz channels
- High Power modules for extended range
- Standard form factor (12.7x25.4x3.5 mm)
- Conforms with regional and national narrowband regulations
- (EU R&TTE; ARIB STD - T66/T67; G.S.R. 564(E)/168(E))
- Pin compatible variants for EU, UK, Ireland, Nordic, Japan, Korea, India and China
- Up to 20 km range (Line of Sight)

## KNX

- Embedded KNX-RF Multi protocol
- EN 50090 (ISO/IEC 14543-3)
- Frequency agility – 5 channels
- Fast link acknowledgement
- Binding up to 64 receivers
- Listen Before Talk (LBT) and Automatic Retransmission
- Multi-hop re-transmitters
- Backward compliant with KNX-RF v1.1 and KNX Ready
- Supports unidirectional and bidirectional devices
- Ultra low power modes for extended battery lifetime

## SIGFOX

- SIGFOX Ready™ certified module with integrated protocol
- Ultra narrow-band with excellent sensitivity and selectivity
- Two-way communication support
- -126 dBm sensitivity, 25mW output power
- Complete module for SIGFOX network connectivity
- 144 transmissions (12 Byte), 4 receptions (8 Byte) per day
- UART interface, pin-to-pin compatible to other modules
- Standard form factor (12.7x25.4x3.5 mm)
- Ideal for Ultra Narrowband Internet of Things (IoT)
- SIGFOX Ready™ certified Demonstration Kit