ADV14-S is a high quality spread spectrum radio modem using a dual conversion super heterodyne to improve performance. ADV14-S uses Multipath Combining Diversity techniques (RAKE) to provide wireless data transmission with low bit error rate in hostile environment. It operates in the 225-400 MHz band (UHF-band) with a raw data rate of 1 Mbps. The main particularity of the ADV14-S is its large range of options making it highly configurable. ADV14-S embeds a CSMA protocol that may be disabled for specific application giving access to a greater data rate. Moreover, an optional channel coding (Reed-Solomon) may be used to further enhance communication quality. Finally, a 128-bit block cipher supporting 128-bit keys may be used for data encryption.

ADV14-S can be customized by inserting a radio front-end from Advanten, between the modem and the antenna, to increase the performances in Tx as well as in Rx mode.

APPLICATIONS

- Wireless remote control
- Telemetry
- Imagery
- Mobile and fixed application
- Point-to-Point and Point-to-Multipoint configuration (CSMA)

FEATURES

- Frequency: 225-400MHz (UHF-band)
- Double super-heterodyne modem
- QPSK modulation
- Raw data rate up to 1 Mbps
- Adjustable RF output power over a 20 dB range
- Optional channel coding
- Optional encryption
- User interface (Channel, RSSI, Output power,...)
- Compact and robust case

SPECIFICATIONS

Frequency characteristics

Frequency:	225-400 MHz / 414-440 MHz
Channel bandwidth:	8 MHz
Channel spacing:	11 MHz

Data output interface

Connector:	MDR-36F
Raw data rate:	Up to 1 Mbps
Protocol:	RS-232 up to 921.6 Kbps

RF characteristics

Connector:	N or SMA
Modulation:	DBPSK or DQPSK
Channels:	16 non-overlapping channels
RX dynamic range:	- 100dBm to -30dBm
RX sensitivity:	- 99dBm (with FEC) - 95dBm (no FEC)
Tx output range:	from 0 to 20 dBm (user configurable), up to 33 dBm with a radio front-end
Half duplex under user control / CSMA-CA	

Spread spectrum

Multipath Combining Diversity with RAKE	
PN Code:	11 to 255-bit Barker

Options

Channel coding:	Reed-Solomon
Encryption:	128-bit block cipher

Power

Supply Voltage:	7 to 36V VDC
Connector:	Circular 4 pins

Operating temperature -40°C to 70°C

Physical

|	
Dimensions:	161x102x29 mm
Weight:	588 gr
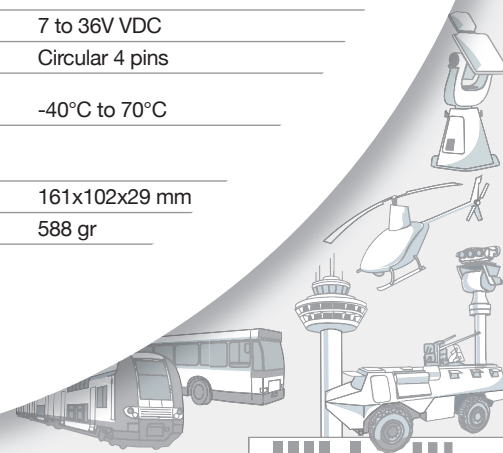
NETWORK TOPOLOGY

ADV14-S allows supporting several Point to Point communications (P2P) and Point to Multi-Point communications (PMP) located in the same area and using the same radio channel.

Dynamic destination address selection on a frame by frame basis allows Multi-Point to Multi-Point communications scenario (M2M).

Several channels can be used simultaneously. which allows microcell applications.

CH1

CH3

CH2

CHn
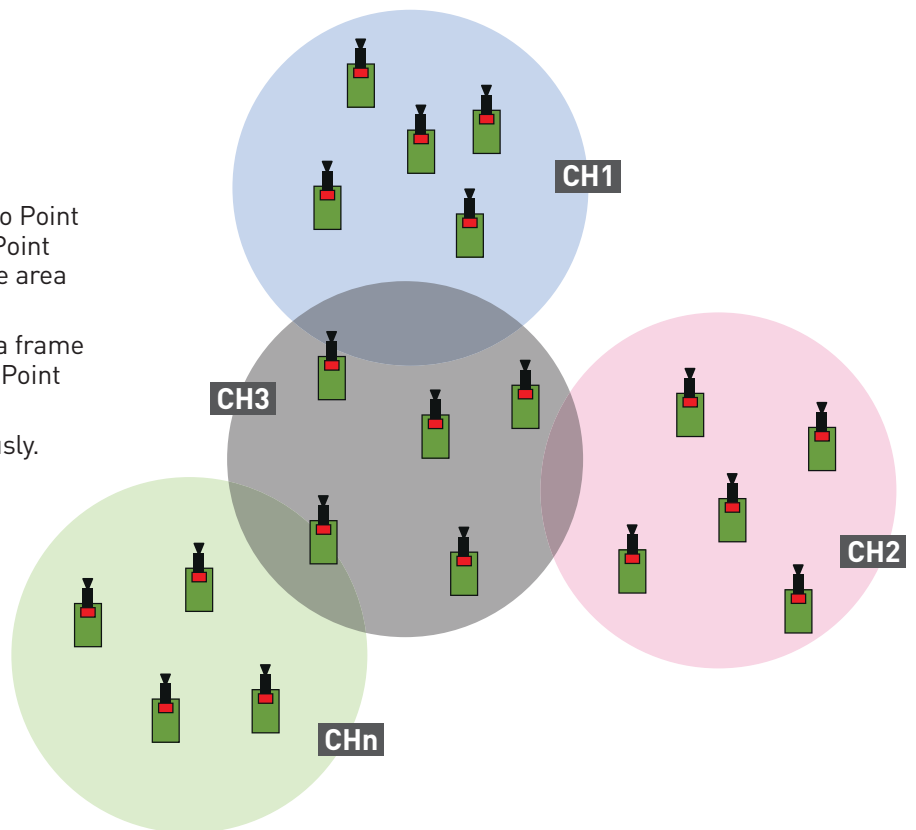
CONFIGURATION SOFTWARE

- Adjustable radio parameters: radio channels, transmitter output power.
- Selection of spreading and transmission mode. Asynchronous link: adjustable baud rate, data length, parity and stop bit.
- Protocol configuration depending on the type of application.
- Status: RSSI, state

Configuration (v1.00)

UHF modem

Operating mode
- Off
- On

Internal state

Idle

Radio state

Channel: 11

Tx Power: 20 dBm

TSSI:

RSSI:

UHF modem detected on COM 1
Radio communication disabled
Transmitter output power is reduced to 20 dBm
Radio communication enabled

Read file
Write file
I/O setup
Radio setup
Protocol setup
Save
Help

OPTIONS

ADV14-S provides a very complete solution to the user with both optional channel coding and encryption functions.

- **Channel coding (Reed-Solomon code):** detection and correction of message errors. Enhancement of the link budget by 3 to 4 dB. Better communications when stations are far from each other

- **Encryption (128-bit block cipher):** protection of the information privacy

- **Radio front-end:** for long range applications. This module is inserted between the modem and the antenna, usually when the latter is far from the modem. The purpose is to increase the transmitter output power and cancel radio cable losses. The user gets an output power up to 37dBm, which is 17dBm more than without using the additional module.

DATA I/O   RF   12-35V DC