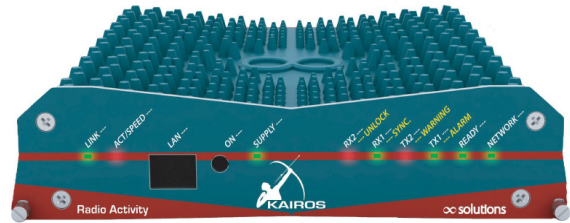


RADIO ACTIVITY KAIROS REPEATER

The Radio Activity Kairos repeater is a 'software defined' radio in which all the mode modulation and filtering processes are achieved through Digital Signal Processing (DSP). This technique assures reliable and precise matching between the base stations and allows for a repeater that is exceptionally small and lightweight. This also provides a platform that is future proof; new protocols and standards can be implemented as a software upgrade. The design is based on a Linux core providing native IP interfacing in distributed IP networks. The radio platform has been designed to meet the most stringent specifications, making Kairos suitable for applications where radio frequency pollution is a known problem. Excellent resistance to interference coupled with software diversity reception, greatly improves usable coverage and ensures clarity of signal.



KAIROS REPEATER

DUAL MODE

The repeater switches automatically between analogue and digital transmission according to the incoming signal type. This enables easy migration from analogue to digital in a large fleet without a complete fleet switch over.

IP MULTISITE MULTICAST AND SIMULCAST

Provides sophisticated network protocols required for professional multisite networks: IP linking and interfaces, Voting, Automatic Equalisation, Synchronisation Recovery, Precision Time Protocol (PTP), Self-Calibration.

SYSTEM REDUNDANCY

Repeaters can be configured in 1+1 hot standby (main + standby) mode to provide system redundancy. Repeaters can also be setup as Backup Masters (a Slave repeater that automatically replaces a failed main Master, maintaining all the network functions). The LINUX platform allows a distributed implementation therefore increasing its flexibility and reliability.

UHF LINKING

Allows the repeater to be used as an RF interconnect between sites where an IP backbone is not available and can be used to link channels in analogue, DMR and dual mode.

RELIABLE

The power supply input is protected from short circuit and under/ over/ reverse voltages. The RF power devices are protected from reverse power, over temperature and over current.

SOFT DIVERSITY RECEPTION

Included as standard, this is a signal reception technique based on the vectorial treatment of two or more incoming signals. It strongly enhances the received range by removing fade holes and other multipath issues.

SIP/RTP-IP PORTS

Provides for direct connection to the radio network and extensive integration capabilities with software applications (e.g. control room consoles) and PABX systems.

POWERFUL REMOTE CONTROL

Setup and network maintenance operations are simplified by use of a sophisticated remote monitoring and configuration tool. This also allows secure software upgrades, IP backbone diagnosis and an overview of the complete radio system. The Kairos also supports the SNMP protocol for direct reporting to a generic monitoring system.

LIGHT AND RUGGEDISED

The Kairos's innovative design provides for an extremely lightweight, compact and fanless repeater. The very low power consumption makes the Kairos well suited to off-grid sites, simplifying and reducing the cost of associated power sources.

KAIROS ENGINEERING SPECIFICATIONS

SPECIFICATION

Available Models	Model KA-080 MHz 66-88
	Model KA-160 MHz 136-174
	Model KA-350 MHz 350-400
	Model KA-450 MHz 400-470
	Model KA-500 MHz 450-527
Model KA-900 MHz 850-960	
Channelisation	25 / 20 / 12.5 / 6.25 KHz
RF Output Power	1-25 W / 100% duty cycle / selectable per channel
Synthesis Step	50Hz
Frequency Stability	0.5 p.p.m. (without GPS)
Synchronisation Sources from	Internal, GPS/GLONASS, Ethernet, 2 wire, Digital RX, External

Operating Temperature	-30°C to +60°C
Power Supply (negative ground)	Minimum: 11V Typical: 13.8V Maximum: 15V
Current Consumption	Transmit: 4.3A @ 25W RF Receive: 360mA with Main + Diversity Receive enabled
Dimensions	160 x 200 x 45mm
Weight	1.3kg
Audio Lines	2 x 4 wire + E&M
LAN Port	Ethernet 10BT / 100TX (auto MDI / MDI X) on an RJ45 socket
IP Multisite Traffic	70 kb/s in analog to / from Master 24 kb/s in DMR to / from Master (both DMR timeslots)
Maximum IP Latency	960ms
Aux I / O	3 x IO + 2 x Analog inputs

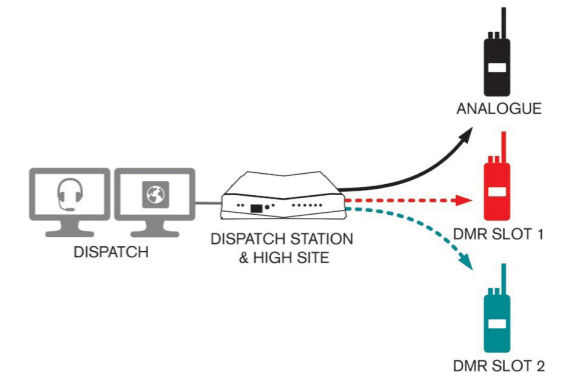
KAIROS SPECIFICATIONS

KAIROS APPLICATIONS

The example configurations below are available both in multicast and in simulcast solutions, all supporting dual mode analogue/digital modulation, IP or trigger base connected dispatchers and PABX patching.

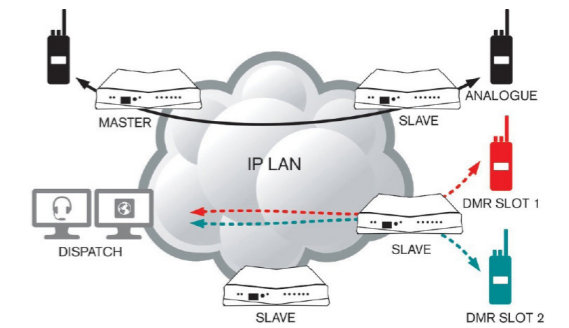
DMR TDMA REPEATER / FIXED STATION

The Kairos supports the DMR Association two timeslot TDMA modulation for both repeater and fixed link use.



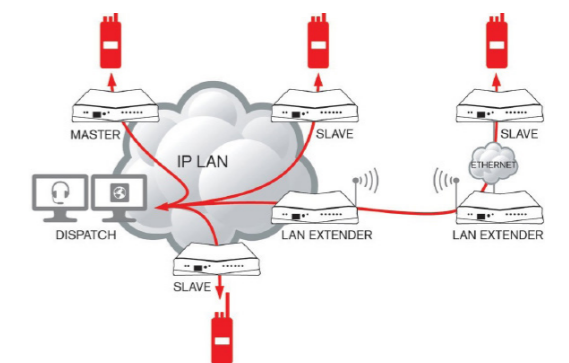
IP LINKED REPEATER

Kairos supports IP connections between base stations to provide multisite hierarchical systems. The role of the repeater can be set as Master, Secondary Master, Slave or Backup Master. A Master manages up to 32 Slaves / Secondary Master.



RF LINKED REPEATER

A Kairos repeater can be configured as a "LAN extender" supporting RF narrowband connections between different sites. It is the perfect solution for very simple long-range links particularly where microwave is ruled out due to topographic limitations. Link traffic can either be a single analogue channel, DMR channel (both timeslots) or dual mode.



KAIROS APPLICATIONS

KAIROS BUILT-IN SIGNALING & PROTOCOLS

SIP/RTP-IP PROTOCOL

for direct connection to a dispatching system

DMR TIER 2 PROTOCOLS

group and individual calls, late entry, txt messages, GPS positioning, raw data, encryption, registration

SNMP PROTOCOL

for remote monitoring

IP PROTOCOLS

with optimised bandwidth to link all the repeaters

MULTISTANDARD ANALOGUE SELCALL CODEC

ZVEI, CCIR, EIA, EEA, DTMF

SYNCHRONISED CTCSS AND DCS CODEC

SQUELCH TAIL CUTTING

FFSK MODEM

1HZ PROGRAMMABLE TONE-KEY OPTIONS