

Challenging Communication Boundaries



Dispatch Solutions for
VoIP Networks



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THE POWER OF VOIP & SIP TECHNOLOGIES

Voice over IP (VoIP) technology is expanding the capabilities of two-way radio communication services through Local Area Networks (LAN) and Wide Area Networks (WAN). VoIP has enabled the implementation of a decentralised radio infrastructure that is flexible, provides a lower cost of ownership and facilitates improved interoperability.

The benefits of using VoIP for radio communications have been greatly enhanced through the introduction of the Session Initiation Protocol (SIP). The adaptation of SIP into the world of land mobile radio has opened the door for new and innovative interfacing, dispatch and interoperability solutions. This powerful and widely accepted protocol is the preferred method of designing and operating modern radio communications networks.

SIP is commonly used in the VoIP telephone world for creating, modifying, and terminating sessions with one or more users.

SIP can be used to create two-party, multi party or multicast sessions and is based on an RFC standard from the Internet Engineering Taskforce. It is now considered the number one protocol due to its simplicity, flexibility and ease of use, and is fast becoming the common language in the convergence of voice and data applications.

Providers of Radio Over IP technology are standardising on SIP because it enables the real time configuration of audio connections between VoIP gateway products, including consoles. In effect this creates distributed audio bridges and dispatch systems that can be controlled from remote locations in real time. Omnitronics has carefully combined SIP with other technologies that have been specifically tailored for Land Mobile Radio. This includes RTP/RTCP and our proprietary digital audio conferencing technology. Together, these enable VoIP connections to remote radios to be established and managed.

Omnitronics produce a range of VoIP & SIP Dispatch Solutions:

Head Office



Operators can connect to radio networks via either:

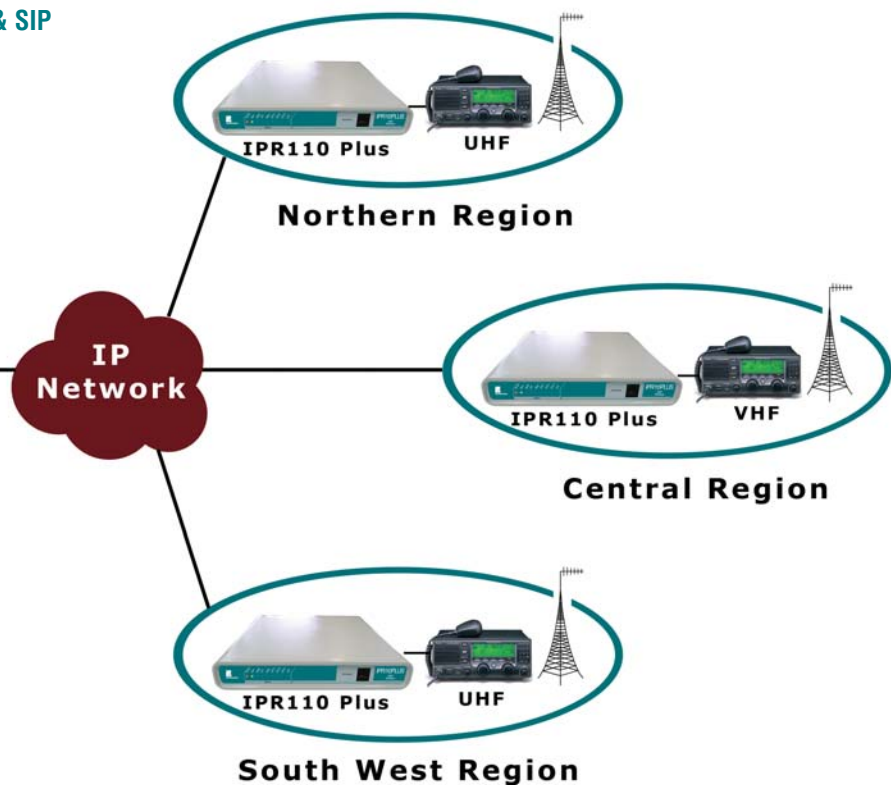
- SIP Phone



- 960SIP Dispatch Console



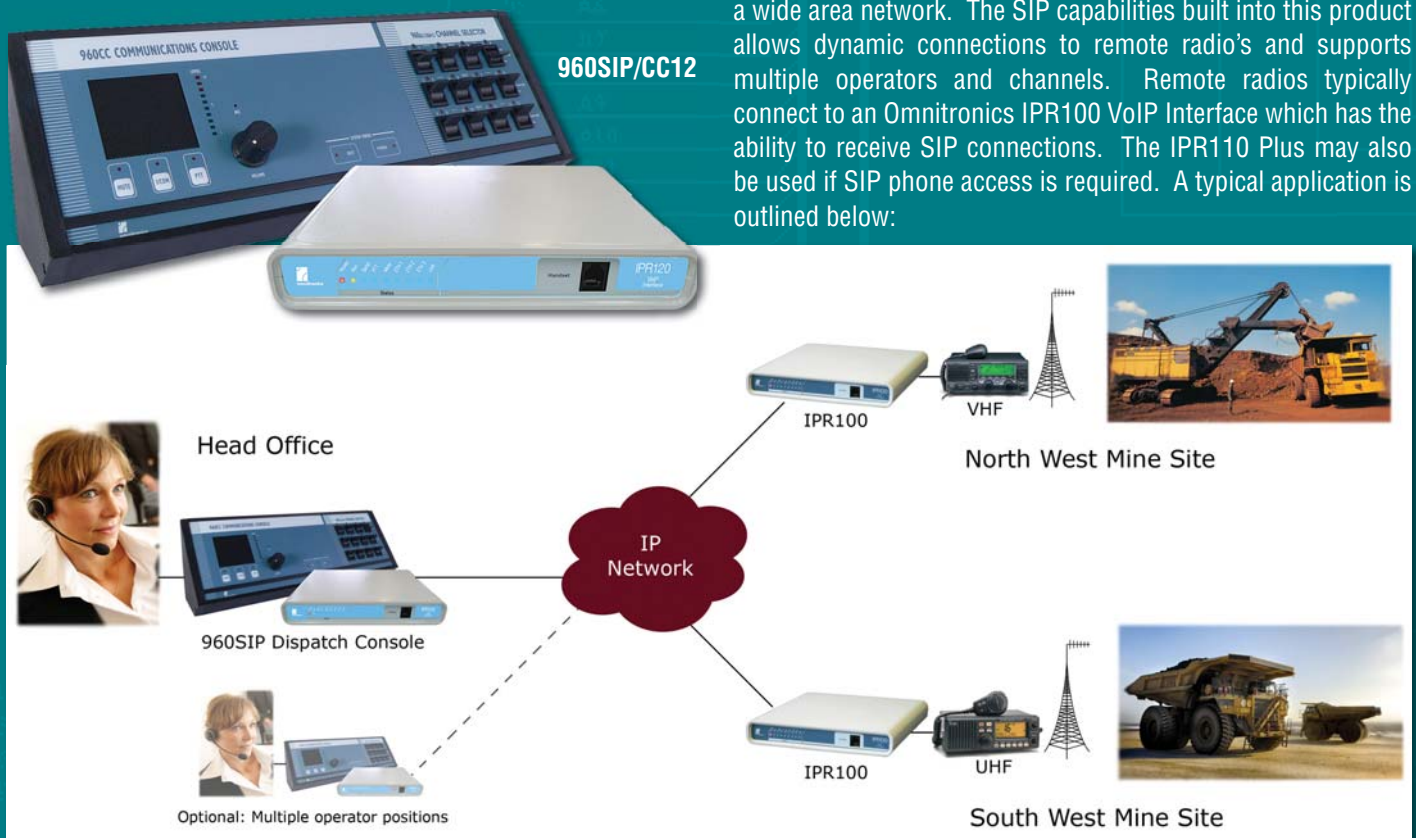
- IPRdispatch



960SIP DISPATCH CONSOLE

“Robust console solution allowing easy access to radio communications using your IP network”

Omnitronics has expanded its radio dispatch products to include SIP technology. The Omnitronics 960SIP Dispatch Console is an integrated solution suited to organisations requiring a reliable, easy to use console for frequent access to a wide area network. The SIP capabilities built into this product allows dynamic connections to remote radio's and supports multiple operators and channels. Remote radios typically connect to an Omnitronics IPR100 VoIP Interface which has the ability to receive SIP connections. The IPR110 Plus may also be used if SIP phone access is required. A typical application is outlined below:



Key Features:

- > “Selected” and “Monitored” audio is available through front panel switches
- > Transceivers are connected to the IP network using IPR100 VoIP adaptors (these devices have the ability to receive SIP connections)
- > Supports UHF, VHF, Marine band and Air band radios
- > Operators can also speak with each other using Intercom

Advantages:

- > Easy access to a decentralised radio network using VoIP and SIP technology
- > Easy to install and begin using straight away
- > Simple channel selection via 3-way switches with foreground and background audio selection
- > Operators can access and share one or more radio transceivers
- > Multiple console positions with intercom available if required

Suitable Applications:

Ideal for small to medium sized operations looking for an easy to

use, robust console for frequent access to a de-centralised radio network.

SIP Selectors

The 960SIP Dispatch Console can be customised to suit your needs. Choose from either a 6 or 12 channel SIP Selector and various dispatch consoles are available including a 960CC or 960CSD depending on your SELCALL & DTMF requirements. Handsets are also available upon request if the console is not required, contact an Omnitronics sales representative for further information.



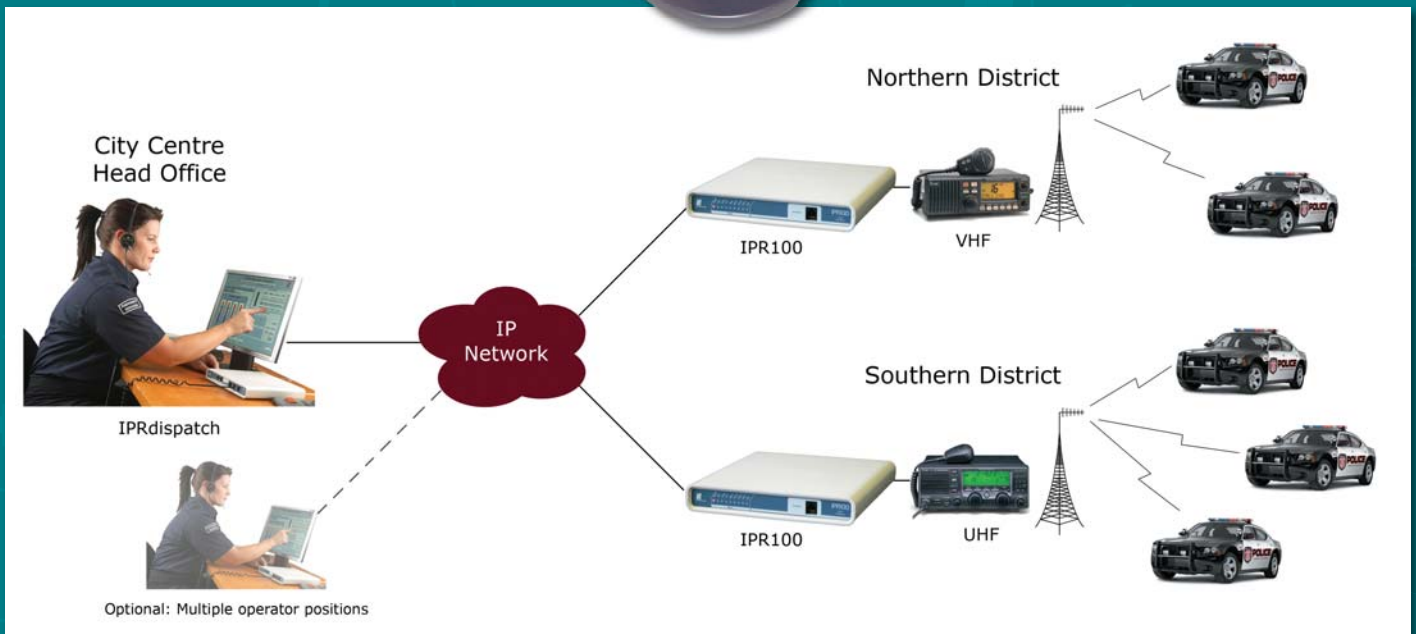
IPR DISPATCH SOFTWARE

“Conveniently access radio networks over IP using your existing PC”

The IPR dispatch works in a similar way to the 960SIP Dispatch Console, however this device is PC controlled. The intercom and PTT buttons are controlled on the touch screen and the microphone and audio capabilities are built into the PC.



Communications paths are controlled by the console operator and each radio user can talk with the operator on demand. This solution supports multiple operator positions and channels.



Key Features:

- > Easy to use PC touch screen
- > Simple one-to-many connections using SIP
- > Transceivers are connected to the IP network using either IPR100's or IPR110 Plus'. Supports UHF, VHF, Marine band and Air band radios

Advantages:

- > Conveniently access a decentralised radio network using VoIP and SIP technology
- > Easy to install and begin using straight away
- > No additional hardware required, run from an existing PC
- > Multiple console positions with intercom available if required
- > Foreground and background audio selection
- > Operators can access and share one or more radio transceivers

Suitable Applications:

Ideal for small to medium sized operations looking for an easy to use, PC based system for frequent access to a decentralised radio network.



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IPR110 PLUS – ADVANCED VOIP & SIP GATEWAY



“Powerful VoIP gateway allowing connection to and from SIP phones and PBX’s”

The IPR110 Plus – Advanced VoIP & SIP Gateway is changing the way organisations communicate with their radio networks, by transcending radio dispatch to include VoIP telephony.

The IPR110 Plus provides all of the facilities found in the IPR100 that support VoIP dispatch applications. However, the IPR110 Plus goes above and beyond the IPR100 through the integration of SIP telephony features. This provides the user with two powerful advantages:

- > The ability to provide radio network coverage to SIP phone users, thereby enabling office staff and other casual users of radio communications to access the radio network when required and without the need for special console equipment.
- > Extending telephone coverage to rugged or difficult locations that are best accessed through wireless communications.

The gateway enables users with compatible telephones to connect to remote radio networks such as an IPR110 Plus equipped repeater. Once connected, the user can broadcast from the repeater and listen to activity at the repeater site. The gateway will support a number of concurrent connections which may include any mix of 960SIP consoles, IPRdispatch programs and SIP phones.

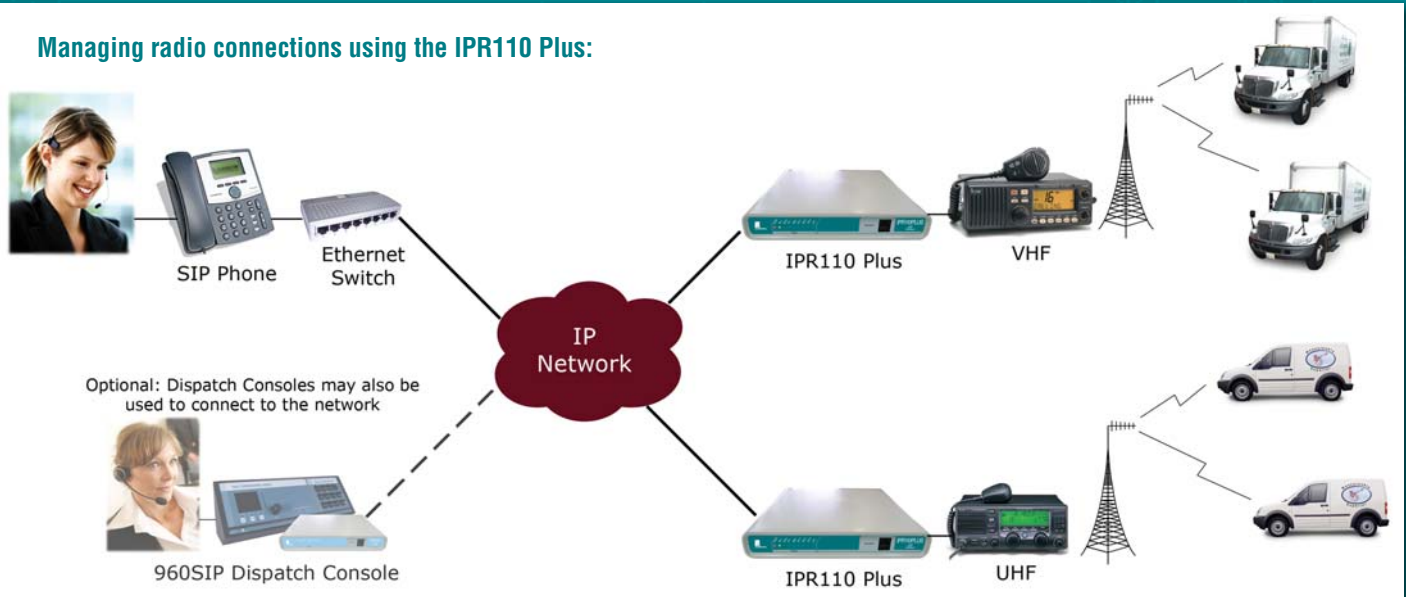
Similarly, users of two-way radio networks will have the ability to dial a SIP phone or telephone extension from the field. Radio users can establish a phone call by keying a pre-set DTMF or SELCALL sequence. On the radio side, the status of a SIP call, whether incoming or outgoing, is translated into familiar tones for the radio user.

The IPR110 Plus also includes a Channel (frequency) Change mode. This facility enables a remote operator with a DTMF keypad to change the frequency of the attached radio by selecting one of the predefined channels. Channel change is supported on the 960SIP/CSD, the IPRdispatch GUI and most SIP telephones.

Key Product Features:

- > Operates like a phone system where calls are initiated by either the SIP phone or the radio user
- > Automatically manages the process of PTT at the radio
- > Enables users to conveniently connect to and from SIP Phones and SIP PBX’s
- > Compatible with third-party VoIP providers
- > Fully compatible with the Omnitronics suite of dispatch consoles and software
- > In-built channel (frequency) change capabilities on supported radios

Managing radio connections using the IPR110 Plus:



Advantages:

- > Easy to install and begin using straight away with minimal training
- > Ability to expand and add new users
- > Enhanced communications between staff including management and operations
- > Increased area of communications coverage
- > Improved safety through accessibility to personnel and the associated reduced delays
- > Low cost of ownership

Suitable Applications:

The IPR110 Plus is the perfect solution for the smaller radio operators such as Sheriff's offices, mine sites, construction sites, refineries, hospital and local councils. However, the product is well suited to any organisation that is seeking to implement a cost-effective dispatch system that transcends the bounds of traditional offerings. An Omnitronics dispatch solution that incorporates the IPR110 Plus may improve communications within the organisation by providing accessibility to telephony users, ultimately enhancing productivity and safety.

SPECIFICATIONS - IPR110 PLUS

Power

Voltage	12Vdc (11.5V to 13.8Vdc) Current 300mA
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Radio Port

Number of channels	1
Connector	8-way US modular
Configuration	Four wire, transformer coupled
Input Impedance	600 ohms
Output Impedance	600 ohms
Input Levels	-27dBm to +4dBm (-10dBm nominal)
Output Levels	-27dBm to +4dBm (-10dBm nominal)
Software level attenuation	0 to -18dB in 3dB steps
Frequency Response	300 to 3000 Hz (within 1 dB)
E-Input Lead	Opto coupled @ 5 to 50Vdc. Link configurable for voltage, contact, switched ground or switched power
M-Output Lead	Relay contacts limited to 30W (30Vdc or 1A). Link configurable for voltage, contact, switched ground or switched power.

Handset/Console Port

Connector	6-way US modular
Configuration	Two wire, balanced half-duplex
Input Impedance	50K ohms
Output Impedance	500 ohms
Input Level Range	-27dBm to +4dBm (-10dBm nominal)
PTT Input	Contact to 0Vdc
Busy Output	+12Vdc

RS-232 Port

Number of channels	1
Connector	DB9 Female (DCE)
Supported Data Rates	38400, 19200, 9600, 4800, 2400, 1200 baud

Network Interface

Connector	8-way RJ45
Interface	10 BASE-T or 100 BASE-T Ethernet with auto detect
Protocol	Multicast RTP
Vocoders	G.711, G.726 ADPCM, GSM (13Kbps)

Front Panel Indicators

System	Power OK, CPU RUN, VoIP Link OK
RS-232	Activity
Radio Port	PTT output active, COS input active
Ethernet	10Mbps/100Mbps, Link Active, Activity

Physicals & Environmental

Style	Desk mount
Weight	0.7 kg or 1.54lb
Dimensions	220mm(W) x 35mm(H) x 230mm(D) 8.66" x 1.38" x 9.06"
Operating Temperature	0 to 60 degrees C

Note. Specifications are subject to change without notice.

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