

# ORC400

## Quad Port RoIP Gateway



## OVERVIEW

The ORC400 is a highly versatile, 19" rack mount communications device used for bridging conventional VHF/UHF radio and IP networks. Using sophisticated signal processing techniques, the device is able to concurrently exchange multiple bi-directional channels of voice band audio between connected radio transceivers and a network dispatch centre or other RoIP gateway. The device is ideally suited for installation at radio repeater sites with IP network access, where its integrated SCADA I/O can also be utilised to perform monitoring and control functions.

## FEATURES

### Voice Radio Interfaces

Four, balanced 600ohm, transformer coupled radio interfaces are provided, enabling either fully differential or single ended operation. Each interface incorporates signalling I/O for mute detection (COS) and transmitter key (PTT) operation, along with two serial ports for separate monitoring and control of transmitter and receiver components. A dedicated analogue input is also provided for received signal strength (RSSI) monitoring.

Audio compression is achieved using either G.711 or G.729 audio codecs, providing high or low bandwidth VoIP solutions respectively. Additional features include sub-audible (CTCSS) and 5-tone (Selcall) signalling, along with test-tone generation and diagnostic loopback capability. An added bonus is the talk-through function, which enables local retransmission of received audio signals. RSSI and real-time signal quality (RTA) are embedded within the audio streams to facilitate voting at the receiving endpoint.

### Data Radio Interface

A dedicated data radio interface is provided, incorporating all necessary signalling I/O and two serial ports for independent control and data functions. Data traffic is seamlessly passed between the IP network and the radio network using UDP protocol as the transport mechanism.

### Network Interface

Network connectivity is provided by way of an integrated gigabit Ethernet switch. Four, auto-sensing, 10/100/1000 ports are provided on the rear of the device for connection to an IP network and attaching other network capable devices. A single 10/100 power over Ethernet (PoE) port is provided at the front for connection of an IP phone or laptop.

### Local Intercom

An integrated speaker and microphone connection socket provide a fifth audio interface, enabling the unit to function as an intercom. Additionally, this interface can be bridged to any of the four radio interfaces, enabling the user to monitor and communicate on the radio networks.

### Site SCADA

Eight digital inputs and outputs are provided, along with three analogue inputs for monitoring and control of variables such as room temperature using programmable function blocks within the ORC400.

### Local Diagnostics

Numerous diagnostic LEDs are provided on the fascia, including transmit and receive level bar graphs, mute and key state indications, IP network activity and system status, thus enabling device operation to be confirmed at a glance. An LCD display and touch pad are also included for viewing detailed diagnostic and setup information.

### Data & Event Logging

Supply voltage and internal temperature monitoring are provided as standard within the ORC400. These parameters are logged to internal memory and are available for display via the web management interface. Many other parameters can be logged, (e.g. RTP statistics), depending upon user requirements. A detailed event log is maintained by the unit, which can be accessed via the web management interface.

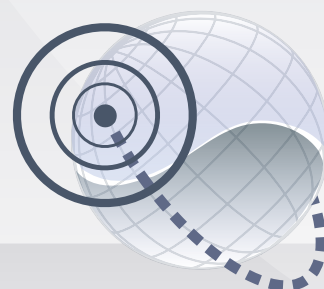
## MANAGEMENT

### Web Management

The ORC400 can be remotely managed from the desktop using a standard web browser. This provides access to a vast array of configuration and runtime information and can be used to remotely enable diagnostic functions such as audio loopback or test tone generation. Alternately the user may browse the system event log, view plots of historical data and download logged information.

### SNMP Management

Remote management and diagnostic functions are also available via SNMP from a standard SNMP management console. Many variables are provided for reading/writing by the management station. The ORC400 can also be configured to send SNMP traps to the management station upon detection of alarm conditions.





## SPECIFICATIONS

<b>Power Supply</b>	
Input Voltage	13.8VDC (10V to 15V DC)
Accessory Output Voltage	48VDC @ 300mA
Power Consumption	10W (min), 15W (nominal), 20W (max) PoE (Class 0) device connected: Add 12W to above figures (max) 48Vdc auxiliary output in use: Add 14.4W to above figures (max)
<b>Voice Radio Interface</b>	
Number of interfaces	4
Connector	DB25 Female
Audio Connection	Four wire, transformer coupled, DC blocked
Input Impedance	600 ohms
Output Impedance	600 ohms
Frequency Response	67Hz – 3kHz, essentially flat over this range
Nominal Input Level	-20 to +5dBm, adjustable in 1dB increments via programmable gain amplifier
Nominal Output Level	-20 to +5dBm, adjustable in 1dB increments via programmable gain amplifier
Relative Level Control	Individually adjustable in 1dB increments from nominal (CTCSS/Selcall/Test)
Pre-emphasis / De-emphasis	Individually on/off selectable at 6dB/octave over voice band
CTCSS Encode/Decode	User selectable standard tones from 67.0Hz to 254.1Hz
Selcall Encode/Decode	User selectable tone set with programmable tone period, lead-in and lead-out delays
Test Tone	User adjustable in 1Hz increments
E-Input Lead (Mute)	0-15V active-low pull-down
M-Output Lead (Key)	Open-drain pull-down
Digital Inputs	2 x 0-15V active-low pull-down
Digital Outputs	2 x open-drain pull-down
RSSI	0-5V
RS232	2 x 2-wire (RXD/TXD), 1200 - 57600 baud
Auxiliary Power Output	1 x 12Vdc (fused @ 500mA)
<b>Data Radio Interface</b>	
Number of interfaces	1
Connector	DB25 Male
E-Input Lead (Mute)	0-15V active-low pull-down
M-Output Lead (Key)	Open-drain pull-down
Digital Inputs	2 x 0-15V active-low pull-down
Digital Outputs	2 x open-drain pull-down
Serial Data	1 x 4-wire RS232/TLL data port (RXD/TXD/CTS/RTS), 1200 – 57600 baud
Serial Control	1 x 2-wire RS232/TLL control port (RXD/TXD), 1200 – 57600 baud
Auxiliary Power Output	1 x 12VDC (fused @ 500mA)
<b>VoIP</b>	
Vocoders	G.711 u-law, G.729
Protocol	RTP
<b>Network Connectivity</b>	
Connector	5 x RJ45 (4 on back, 1 PoE on front)
Interface	10/100/1000 auto detect on back, 10/100 auto detect on front
<b>SCADA I/O</b>	
Analogue Inputs	3 x 0-5V + Internal Temperature and Supply Voltage
Digital Inputs	8 x 0-15V active-low pull-down
Digital Outputs	8 x clean contact relay (DC rated 2A @ 28V, AC rated 0.5A @ 125V)
<b>Local Monitoring &amp; Control</b>	
Microphone	Front & rear connection via ¼" stereo jack
Speaker	Internal (3W) + External (3W)
LCD	4 line x 40 character with adjustable backlight
Keypad	7 x touch sensitive buttons + scroll wheel
Diagnostic LED's	Comprehensive (audio levels, mute/key, serial tx/rx, scada i/o, Ethernet etc)
Auxiliary Serial Ports	1 x RS232
<b>RoIP Dispatch Software Compatibility</b>	
Xworks - XWIRE	Yes
Twisted Pair Solutions – WAVE	Yes
<b>Physical &amp; Environmental</b>	
Style	2U Rack Mount
Construction	Milled aluminium fascia, rear panel and base plate. Folded stainless steel lid.
Weight	4.51kg
Dimensions	482mm x 206mm x 87mm (width x depth x height)

