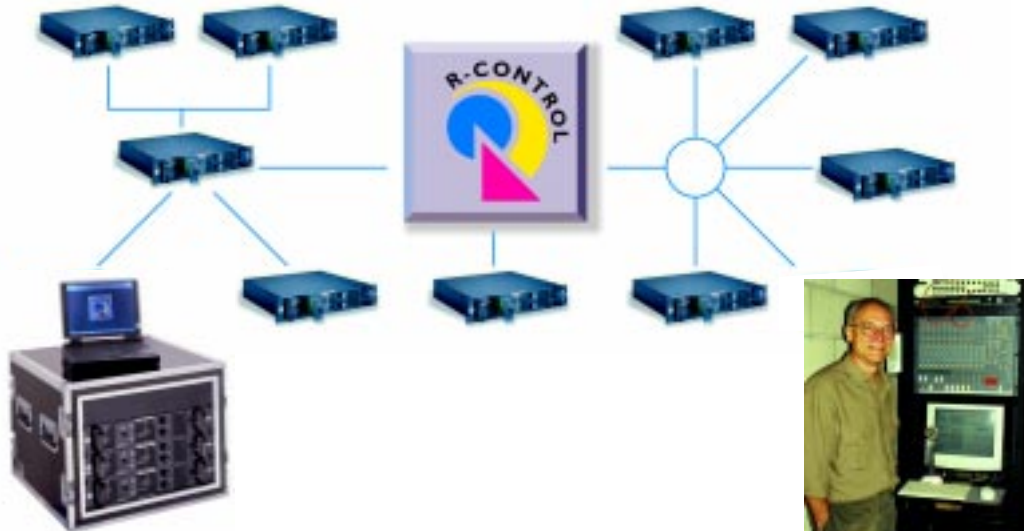




RENKUS-HEINZ

R-Control

Remote System Supervision Network



Real-world monitoring and control from the engineers of Renkus-Heinz

If you've tried working with networks, you'll like how R-Control works with you.

R-Control is the standards-based network solution that puts you in control of an entire Renkus-Heinz system. Monitor driver impedance and Loudspeaker Specific Processing in real time. Schedule and supervise critical amplifier functions. All with the network topologies, groups and zones you define.

Easy to Learn, Simple to Operate

Intuitive Windows® user interface
Multiple screens give you the functions you need to use at any level of detail you need, from a single amplifier to the entire network

Easy to Install

You define the network topology
You define 100 amplifier groups/zones*
64 amplifiers without routers; 225 amplifiers using readily available Echelon LonWorks* routers
Unique ID number for each Renkus-Heinz amplifier; no DIP switches
Free topology networks up to 500m (1640 ft), doubly terminated bus length of 2700m (1.7 miles) without routers

The Power of Standards

Based on proven technologies with global support and multiple hardware sources, including Echelon LonWorks® (in use worldwide for building control) and Microsoft Windows 95/98/NT®

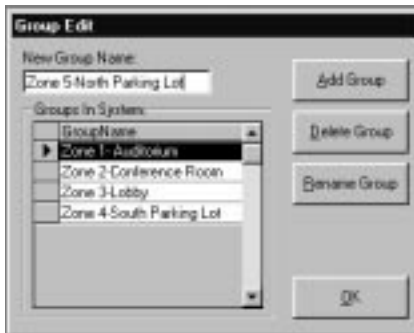
Total System Supervision

Power On/Off with sequencing for amplifier groups
Event Scheduler
Channel level controls
Solo function
Individual channel polarity inversion
Real-time load monitoring
Power status
Input & Output signal levels
Limit & Clipping indicators
System Specific Controller module status

Safety & Reliability

Audio signals are unaffected by any network failure, including PC crashes
Network is unaffected by loss of a node
Amplifier levels can be adjusted manually if network is down: R-Control is automatically updated when network is restored

** expandable in software as needed*



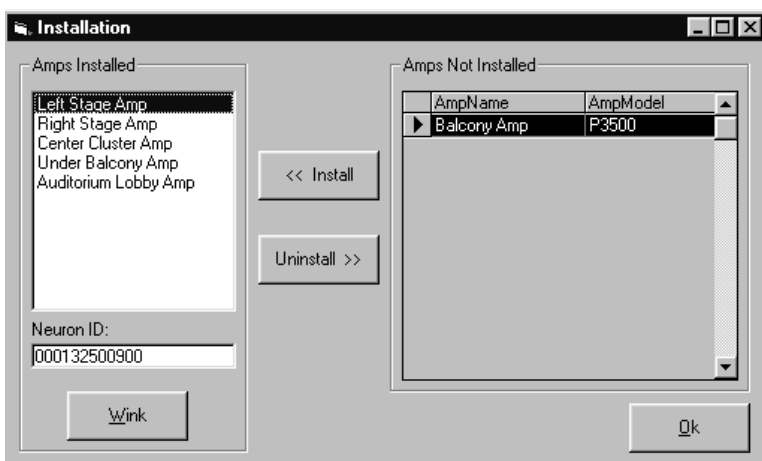
Group Edit: Create amplifier groups



Amp Edit: Name amplifiers



Grouping: Place amplifiers into groups.



Installation: Install amplifiers on the network.

Simple Installation

Each amplifier has a network card that both sends information to the R-Control computer and receives instructions from it, over a twisted pair of wires. Network wiring topology is independent from software-defined amplifier groups or zones. The network card also has a unique, serialized ID number in memory, which is transmitted to the R-Control computer by pressing the Service Pin. The twisted pair connector is insensitive to polarity, so the connector cannot be plugged in improperly.

Flexible Configuration

Create Amplifier Groups

To configure your network using R-Control software, start with the Group Edit screen shown at left. Here you decide how to group the amplifiers for maximum flexibility, ease of monitoring and ease of access to controls. First, name the group (Rack 1, Rack 2, for instance, or Upper Deck, Lower Deck). Then add the group. Names can be changed and groups added or deleted at any time. R-Control allows you to define up to 100 separate groups.

Name Amplifiers

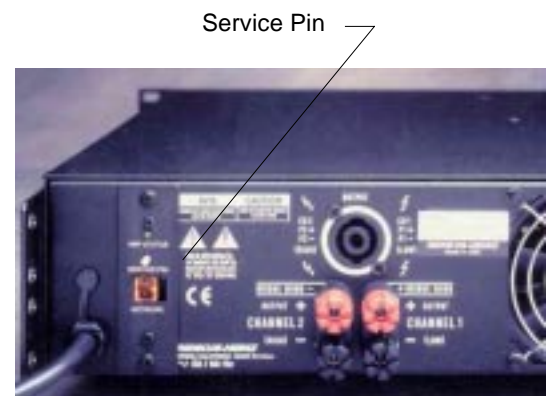
Next, move to the Amp Edit screen (pictured at left). Here you can name each amplifier. You can also specify the model number: as soon as you do this, an amplifier icon appears.

Group the Amplifiers

For step three, switch to the Grouping screen shown at left. Select each group and add the appropriate amplifiers to it

Identify the Amplifiers

This final step is accomplished on the Installation screen (left). Simply select an amplifier name in the Installation screen, and press the Service Pin button located on the rear of the corresponding amplifier to send that network card's unique serialized ID number to the R-Control computer.



Easy Operation

System setup, operating adjustments and monitoring for potential problems can all be quickly and easily accomplished using three screens. The All Groups screen shows all groups on the network. Clicking on a group opens the Group screen and displays all amplifiers in that group. Double-clicking on an amplifier icon brings up that amplifier's control/monitoring screen.

System Overview

The screen at right shows all the Groups in the network. The All Groups control panel allows the operator to turn the sound system On or Off, Mute it or adjust the level of all amplifiers simultaneously. Individual groups can be muted or toggled On or Off by clicking the corresponding function buttons in the group window. The Solo button mutes all the other groups. During system setup, this handy function makes it easy to monitor and adjust groups or zones individually. To access controls for a specific group, double click on the icon: the Group screen will open, and the small window in the lower right will change to allow you to mute the entire group, adjust its level or switch it On or Off.

Group Monitoring/Control

During operation, warning messages will appear in a group icon if a problem occurs. For example, "hot," "output protect" and "off-line." Double clicking on a group icon opens the detail screen for that group (shown to the right).

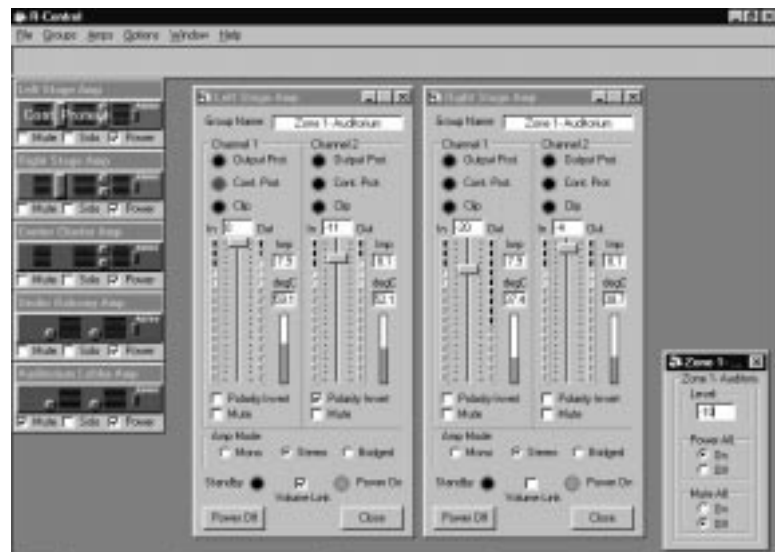
The Group detail screen shows the status of all the amplifiers assigned to that group. The user can identify at a glance which amplifier generated the operating condition alert. Double clicking on that amplifier's icon opens the amplifier control screen. This screen shows detailed information for both amplifier channels, including input and output signal levels, operating temperatures, load impedance (in real time) clipping, and protection circuit status for both the amplifier and the System Specific Power control module.

Individual Amplifier Supervision

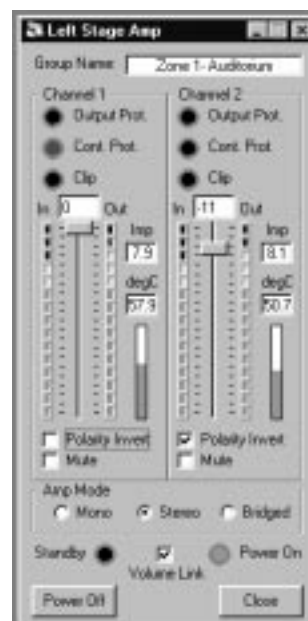
A slider allows easy adjustment of amplifier channel gain. Buttons mute each channel or invert its polarity. The Amp Mode section reminds the operator of how the amplifier is being operated. In Bridged mode, only the Channel 1 level slider is active. In Mono mode, only Channel 1's signal level meter is active.



Group Monitoring & Control



Individual amplifier supervision



Individual amplifier supervision

For stereo operation, the Volume Link box ties the two amplifier channels together – any level changes made to one channel are automatically replicated on the other channel while retaining any offsets which were established.

System Requirements

R-Control is a 32-bit program that runs under Windows 95, Windows 98 or Windows NT, on any Pentium PC with a clock speed of 300 MHz or higher.

TECHNICAL SPECIFICATIONS

<p>PLATFORM: TYPE: Differential Manchester encoding; polarity insensitive, free topology standard, doubly terminated bus topology available.</p> <p>DATA RATE: 78 Kb/s on standard systems; higher rates available.</p> <p>TRANSCEIVER: EMI: complies with FCC Part 15, Class A; UL recognized; VDE: EMI compliant.</p> <p>CAPACITY: MAXIMUM # OF POINTS: 64 on standard system, expandable in 64 point steps with routers up to 225 total; larger systems available.</p> <p>MAXIMUM # OF GROUPS: 100 in standard system, larger systems available</p>	<p>PLATFORM (Cont): CONFIGURATION: Free Topology on standard systems; Doubly-Terminated Bus available</p> <p>COMPUTER TYPE: IBM or 100% compatible Pentium PC</p> <p>OPERATING SYSTEM: Windows 95/98/NT</p> <p>RAM: 32 MB minimum</p> <p>HARD DISK SPACE: 50 MB minimum</p> <p>CLOCK SPEED: 300 MHz minimum</p> <p>ASSOCIATED EQUIPMENT: R-H System Specific power amplifiers with R-Control Network Card; PCLTA-10 PC Lonwork PC Interface card</p>
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TRANSMISSION LINE LENGTHS

Cable	Free Topology Max Amp-to-Amp Length (Meters/Feet)	Free Topology Max Bus Length (Meters/Feet)	Doubly-Terminated Bus Topology Max Bus Length
Belden 85102, 16 ga, stranded twisted pair	500 m / 1640 Ft	500 m / 1640 Ft	2700 m / 8850 Ft
Belden 8205, 20 ga, stranded twisted pair	400 m / 1310 Ft	500 m / 1640 Ft	2700 m / 8850 Ft
Level IV, 22 ga, solid twisted pair	400 m / 1310 Ft	500 m / 1640 Ft	1400 m / 4590 Ft
TIA568A Category 5, 24 ga, solid twisted pair	250 m / 820 Ft	450 m / 1475 Ft	900 m / 2950 Ft

ARCHITECTS AND ENGINEERS SPECIFICATIONS

A Renkus-Heinz R-Control amplifier control and monitoring system or approved equal shall be provided.

The amplifier control and monitoring system shall provide computer control of each amplifier channel's volume level and polarity plus the capability to monitor each amplifier channel's input and output signal levels, temperature and protection circuitry status. Facilities for turning the amplifiers on and off, either individually or in groups, shall also be included.

The system shall include control and monitoring facilities for () amplifiers and () amplifier groups, and be capable of future expansion using readily available routers.

The system shall have an Echelon based network platform that is fully compatible with Lonworks® networks. The network shall be polarity insensitive and not affected by the loss of power. Network failure shall not affect either individual amplifier or overall system operation.

The program shall have a Data Transmission Rate of at least 78 Kb/s and comply with FCC Part 15, Class A for EMI compliant devices.

It shall be a 32-bit program developed to run under Windows 95 /98/NT on Pentium PC's having at least 32 MB of RAM and a clock speed of at least 300 MHz.

