



AX-R4 Router

Full 2-way RS232 & Ethernet control. Unlocks the full potential of the KPC 2.8 Touchpanel.

FEATURES

- 4 x Dedicated RS232 DB9 ports, max throughput = 115 k baud
- 6 x KPC 2.8 Touchpanel RJ45 ports
- Ethernet RJ45 port: 10Mbps, DHCP or Fixed IP. DNS host name resolution supported. SNTP time/date synchronisation via internet. More internet services may be added in future.
- IR routing from specific keypad ports.
- 4 x IR emitter output / sensor input 3.5mm jacks. These jacks work concurrently as an IR output and sensor input.
- IR emitter output level adjustment.
- Realtime internal clock.
- Microphone line level out, with output sensitivity adjustment.
- 2 x RJ25 Expansion ports. IN from the previous R4 & OUT to the next R4.
- 3 x Status LED's.
 - Power (green)
 - Heartbeat (orange)
 - Port Activity throughput (orange)
- Powered by AX-451/452AV multi-zone amplifiers or 12 – 18 VDC 1.6A power supply.
- Two way control Applets for:
 - Integra Tuner, CD, DVD, Receiver

including Z2 and Z3.

- DLO docking station
- Sonance I-Pod Dock
- Vantage lighting
- Autonomic Controls Media Center
- Vantage DMM
- Clock with optional date, multiple formatting options, daylight saving aware, screensaver functionality.
- More to come...

Please check www.axium.co.nz for the latest applet updates.

- Approvals: C-Tick CISPR22, FCC

WIRING

The six keypad RJ45 ports can be used for connecting KPC 2.8 touchpanels using a maximum of 100 metres (328 feet) of CAT-5 cable. The CAT-5 cable connections are the same as for standard patch cables. The port connections are freely interchangeable. These ports cannot be used with the AX-KPB and are not designed for connecting to an Ethernet network.

The four RS232 DB9 ports are used for connecting RS232 controlled equipment. The pin allocations follow the standard for male connectors, where pin 2 is R4 receive, pin 3 is R4 transmit and pin 5 is ground.

Standard single IR emitters are plugged into the IR ports and fixed to the IR window of the controlled equipment. The emitter current for each port can be increased by turning the potentiometers anti-clockwise.

The paging output is active when the microphone on a KPC 2.8 is used. This is connected to an input of an amplifier (typically source 8 on a 451/452AV or MZA-4.7). The potentiometer can be turned clockwise for increased gain.

The two RJ25 ports are used for daisy chaining multiple routers. This allows the creation of a matrix of more than six KPC 2.8s and/or more than four RS232/IR controlled devices. When two or more routers are chained, the RS232 and IR port numbering is modified so that the first router is numbered

1-4, the second is 5-8, the third 9-12, etc. The "OUT" connector of the first router is connected to the "IN" connector of the second router. If a third router is used, the "OUT" connector of the second router is connected to the "IN" connector of the third router and so on for a total of up to six routers. The "IN" connector of the first router and the "OUT" connector of the last router is NOT used. The leads connected to the expansion ports shall not exceed one metre (3 feet) in length. The leads are made using RJ25 connectors and flat 6 core telephone cable or CAT-5 cable. The recommended connections are:

RJ25 Pin	CAT-5e/6 Colours
1	white/green
2	white/orange
3	blue
4	white/blue
5	orange
6	green

The green Axiom port connector connects to an Axiom 451/452AV or Integra MZA-4.7 amplifier or amplifier stack. 12VDC is provided by the amplifier to power the R4. If multiple routers are chained together, data and IR is connected only on the first router. The IR pin is bidirectional.

When not using an Axiom 451/452AV or Integra MZA-4.7 amplifier or if a higher supply voltage is required, a 12 – 18 VDC centre positive plug pack power supply is used to power the R4. 12V is sufficient for only up to approximately 50 metre (164 feet) cable runs to KPC 2.8 touchpanels, higher supply voltages are required for longer cables.

The Ethernet connector located between the RS232 and the expansion ports can be used for providing network and internet access to the R4 and connected KPC 2.8 touchpanels. The network must be DHCP capable unless a static IP address is configured. The R4 automatically fetches the current time and date if the network has internet access. If multiple R4 routers are used, each R4 needs an Ethernet connection if network or internet features are used.

The USB connector is only used in combination with the R4 Manager program (see below).

CONFIGURATION

The default factory settings are to use DHCP and to synchronise the real time clock with time.nist.gov if an Ethernet connection is used. The R4 Manager program included in the Axiom Software Suite available from <http://www.axium.co.nz/> is required should other settings be required. The R4 Manager also offers diagnostic and firmware update functionality. Please see the documentation in the Axiom Software Suite for more information.

TROUBLESHOOTING

No control of any equipment

- Check the power LED. Check power supply if not lit.
- Check heartbeat LED. If not flashing try powering the unit off and back on again.
- Ensure the correct setting is used in AKM under "Settings" - "Serial device" in the KPC 2.8 configuration. Use either "Auto detect" or "AX-R4 Router".
- If using a single router ensure that the "IN" and "OUT" ports are not used.
- If using a chain of routers, ensure that the chain has a definitive beginning and end and that no loop exists.

No control of specific equipment (RS232 and IR)

- Ensure that the RS232 and IR port connections correspond to the ports assigned in AKM when configuring the KPC 2.8.
- Ensure that the correct pins for receive and transmit on the RS232 connection are used.
- Some RS232 devices allow the baud rate and other parameters to be adjusted. Ensure that the settings required by the applet are used.
- If using a chain of routers ensure that the port assignment rules have been correctly understood and applied.
- Ensure that the equipment is working correctly and that all the connections

and cables are sound.

No control of specific equipment or services (Ethernet)

- If using an IP address, ensure that the address of the equipment or server is statically assigned and corresponds to the address assigned in AKM when configuring the KPC 2.8.
- If using a host name, ensure that the name can be resolved using DNS. NetBIOS computer names are not supported.
- Ensure that the equipment is reachable by the R4, e.g. that there are no problems with routing, subnets, etc.
- If using a chain of routers ensure that each one needing network access has its own connection to the network.
- Ensure that the equipment is working correctly and that all the connections and cables are sound.
- If attempting to control a service running on a PC, ensure that the service is running correctly.

No network access

- Check the green LED on the Ethernet connector. It will be lit when there is an Ethernet link.
- Ensure the network is functioning correctly.
- If using DHCP (default setting), ensure that the network supports DHCP. If not, see "Configuration".
- If using a static IP address, ensure that the correct subnet is used and that there are no address conflicts.

PRECAUTIONS

- Never expose the unit to moisture.
- Ensure the unit is powered by a DC supply within the recommended voltage range.
- Do not connect the RJ45 keypad ports to an Ethernet network.
- Do not connect the IN and OUT ports of a single router together. Also do not

connect a chain of routers so that a loop is formed.

LIMITED WARRANTY

Audio Engineering Ltd warrants its products to be free of material and construction defects. The warranty is for One Year from the date of purchase by the original consumer. Any products returned to either Audio Engineering Ltd or the Axiom Distributor and found to be defective within the warranty period will be repaired or replaced at no charge. The warranty does not cover costs relating to installation or removal of the product or consequential damages.

ACKNOWLEDGEMENTS

The AX-R4 Router firmware is based in part on FreeRTOS.org™ V5.0.2 and the uIP TCP/IP stack. For more information on FreeRTOS.org™ please visit <http://www.freertos.org>. FreeRTOS.org™ source code can either be downloaded from the official website or alternatively can be provided by us, see <http://www.axium.co.nz/> for contact details.

The following text concerning the uIP TCP/IP stack is required by its license:

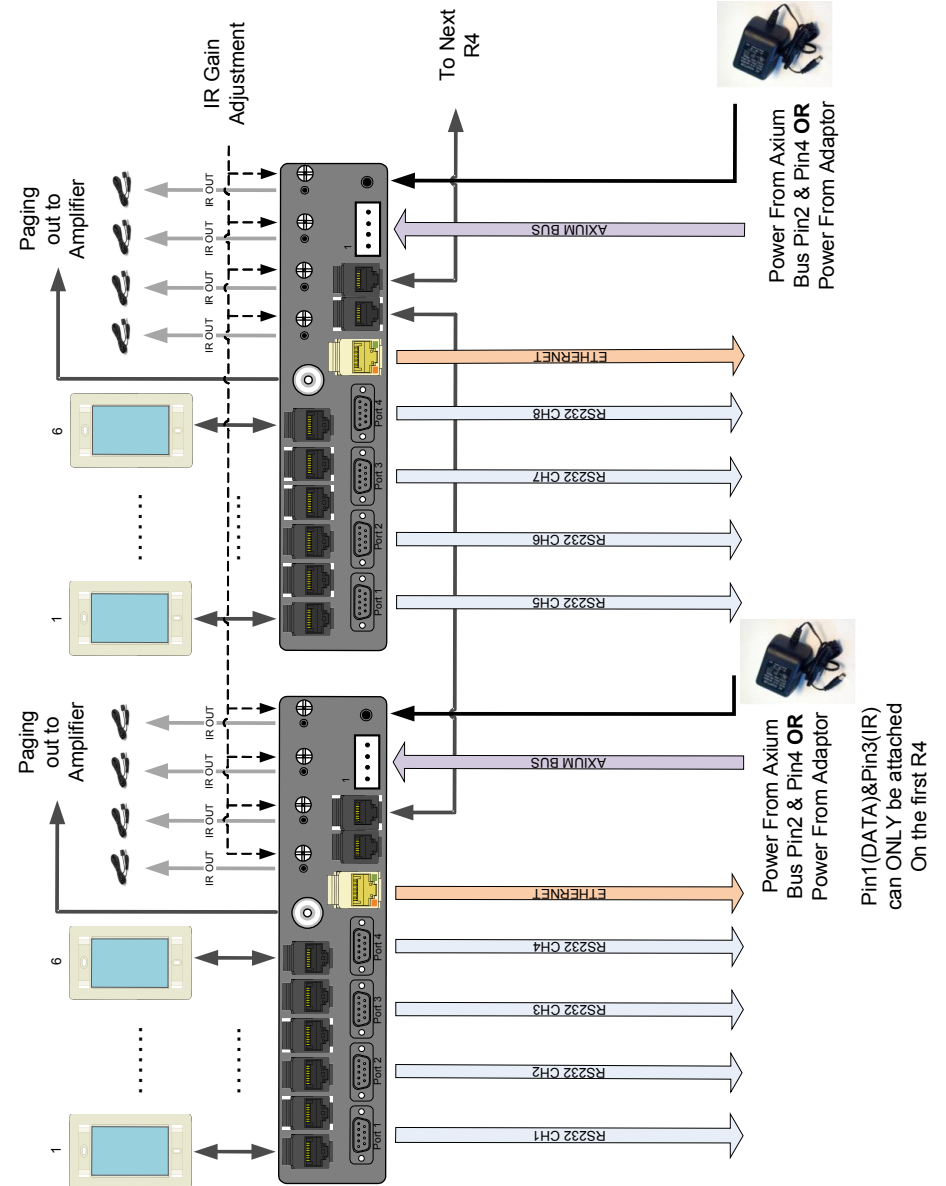
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INSTALLATION



Power From Axiom Bus Pin2 & Pin4 OR Power From Adaptor



Power From Axiom Bus Pin2 & Pin4 OR Power From Adaptor

Pin1 (DATA) & Pin3 (IR) can ONLY be attached on the first R4