



XP-8v

Advanced Control Processor

Reference Guide



XP-8v Advanced Control Processor

The XP-8v is a high-end remote control processor for automating the operation of electronic systems in homes and office buildings. The combination of a blazing fast MPU, real-time/multitasking operating system, and tremendous expansion capability, make the XP-8v the perfect solution for large-scale and complex projects.

The XP-8v provides superior quality and reliability as well as these features:

- Powerful 1GHz internal processor.
- 4Gb of non-volatile flash memory.
- One HDMI output for on screen display (OSD) video interface
- Eight multi-purpose I/O ports.
- Eight programmable relay outputs.
- Eight two-way RS-232 ports.
- Eight sense inputs.
- Multi-purpose I/O ports are compatible with industry-standard IR emitters, blasters and repeater systems.
- Multi-purpose I/O ports support all optional RTI power sensing and communications modules.
- All output ports incorporate both short-circuit and overload protection.
- Variable IR output on all ports.
- Front panel controls/display (11 Buttons for front panel control).
- Non-volatile Flash memory stores your system configuration even when power is not present.
- Field upgradeable firmware.
- USB and Ethernet programming.
- Compatible with RTI 433MHz and 2.4GHz Zigbee® RF modules.
- Astronomical clock built in for time-based event programming.
- Designed for rack mount or free standing installations.

Installation & Operation

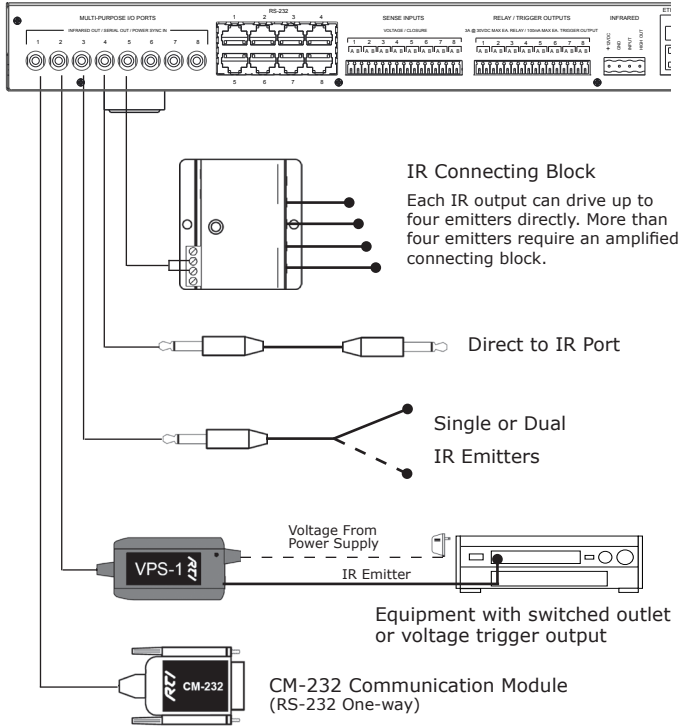
PROGRAMMING THE XP-8v

The XP-8v must be programmed to operate. All programming is done using RTI's *Integration Designer*® software and is downloaded using the USB Programming Port located on front of XP-8v or via Ethernet.

UPDATING FIRMWARE

It is highly recommended that this and all RTI products have the latest firmware installed. The firmware can be found in the Dealer section of the RTI website (www.rticorp.com). Install the firmware using the USB Programming Port located on the front of XP-8v.

MPIO PORTS - Control via Infrared, Sensing and RS-232 (One-way)



INFRARED EMITTERS

The multi-purpose I/O ports on the XP-8v are compatible with industry standard infrared emitters and infrared repeating systems. Each output port is capable of driving up to four infrared emitters directly. The use of more than four infrared emitters requires the addition of an amplified connecting block. A connecting block can be wired up to 1000 feet away from the XP-8v using #22 AWG (minimum) wire.

INFRARED OUTPUT GAIN ADJUSTMENT

The IR output gain can be separately adjusted for each of the eight output ports. The XP-8v is shipped with the IR gain set to the optimum level for most equipment, and it should only need to be adjusted if the attached equipment is not responding reliably. If adjustment is needed, rotate the IR output controls on the front of the XP-8v clockwise for higher output power, or counter-clockwise for lower output power.

NOTE: The IR output feedback LEDs located on the front of the XP-8v will illuminate when any IR code is delivered out of a port. This includes IR codes "passing through" from another source, such as an IR receiver.

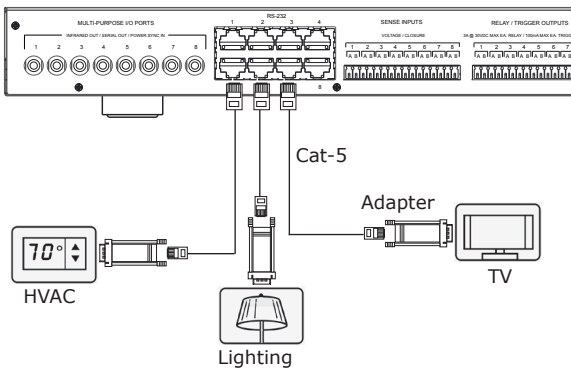
VPS-1 SENSOR MODULE

The multi-purpose I/O ports on the XP-8v are compatible with RTI power sensing modules (e.g. VPS-1). Follow the guide included with the modules for installation instructions, and follow the instructions in the *Integration Designer*® software for programming details.

RS-232 COMMUNICATION MODULES (CM-232)

The multi-purpose I/O ports on the XP-8v are compatible with RTI RS-232 communication modules (e.g. CM-232). Follow the guide included with the modules for installation instructions, and follow the instructions in the *Integration Designer*® software for programming details.

RS-232 PORTS



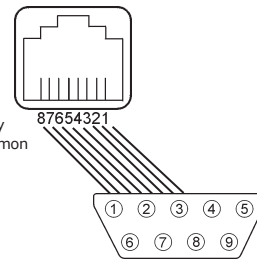
The XP-8v is capable of two-way control using RS-232 communication via eight RJ-45 output ports using standard Cat-5 cable with RJ-45 termination (568B). The XP-8v ships with eight RJ-45 (female) to DB-9 (male) adapters.

IMPORTANT NOTE: RS-232 communication cabling should be limited to 50 feet (16m) depending on baud rate.

DB-9 - RJ45 ADAPTOR PINOUT

RJ-45 (XP-8v RS-232 Output)

Pin	Signal Name	Signal Description
1	DSR	Data Set Ready
2	DCD	Carrier Detect
3	DTR	Data Terminal Ready
4	GND	Signal Ground/Common
5	RXD	Receive Data
6	TXD	Transmit Data
7	CTS	Clear To Send
8	RTS	Request To Send

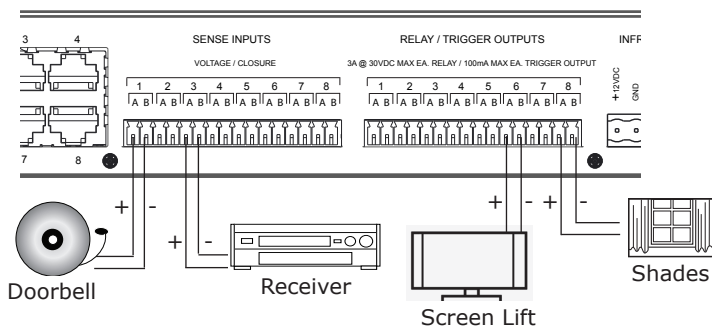


DB-9

Pin	Signal Name	Signal Description
1	DCD	Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	NC	Not Connected

SENSE INPUTS / RELAY-TRIGGER OUTPUTS

Sense inputs and relay-trigger modes are configured within *Integration Designer*®.



SENSE INPUT

Upon sensing contact closure or a voltage (2-24VDC), events can be automatically triggered such as a macro or command.

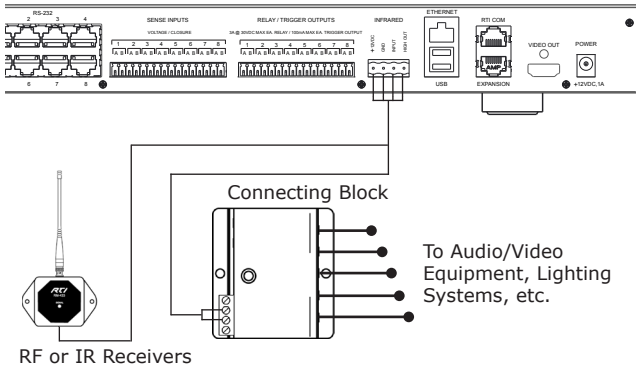
- Sense contact closure: Connect conductors from the source device to each side of a sense input (A and B).
- Sense voltage trigger: Connect positive lead from voltage source to Side A of sense input and ground lead to Side B.

RELAYS/TRIGGER OUTPUTS

Relays may be configured as a dry contact closure or a voltage trigger output (12VDC @100mA). All relays are Normally Open when not energized, and may be programmed to behave Normally Closed (as long as power is applied to the XP-8v).

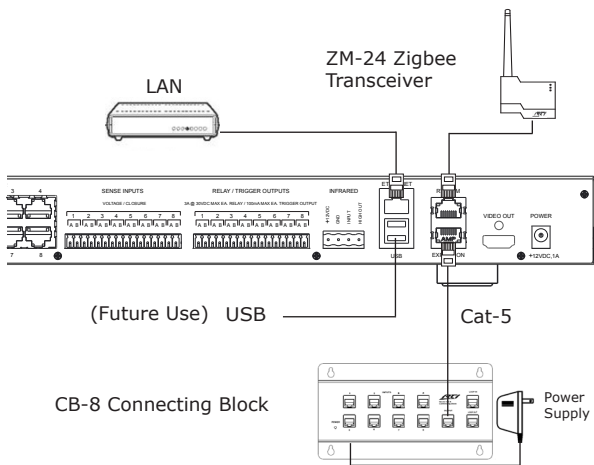
- Contact closure: Connect the A and B contact terminals of a relay to the device.
- Voltage trigger: Connect contact A to the positive lead and connect Contact B to the ground lead of the device.

SIGNAL IN/HIGH OUT/POWER TERMINALS



- **TERMINAL: +12VDC**
Positive power supply connection. It is internally tied to the Power jack. This can be used to power external IR or RF receivers.
- **TERMINAL: GROUND**
Common ground connection. Use this ground reference for any device that is connected to the +12VDC, SIGNAL IN, OR HIGH OUT terminals.
- **TERMINAL: INPUT**
Input connection for system trigger codes. This should be connected to an RTI RM-433 RF receiver or industry standard IR repeater system. The signal voltage can be from 3VDC - 12VDC.
- **TERMINAL: HIGH OUT**
High current (200mA) IR output connection. This can be used to power up to 10 infrared mini-emitters, an IR blaster, or extending IR control over a long distance (1000 ft. max).

ETHERNET, USB, RTI COM, EXPANSION PORT



ETHERNET

This RJ-45 port allows connection to a 10/100 Base-T Ethernet network (LAN). Network settings such as the IP address are configurable within *Integration Designer*®. Ethernet may also be used to download system files to the XP-8v.

USB PORTS (REAR)

These host ports for external devices are intended for future use.

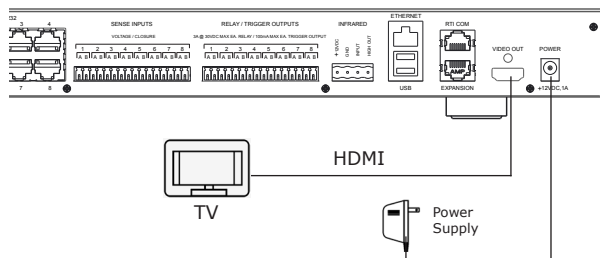
RTI COM

This RJ-45 port allows connection to a ZM-24 Zigbee® transceiver module for two-way communication with compatible RTI handheld controllers. Refer to the ZM-24 Zigbee transceiver module operation guide for installation instructions.

EXPANSION PORT

This RJ-45 port provides a convenient connection for receiving IR signals and two-way RS-485 communication from RTI in-wall controls through a CB-8 connecting block. NOTE: In-wall controllers may be connected directly to the XP-8v Expansion Port, however, they should be powered with a separate power supply.

HDMI, POWER



HDMI

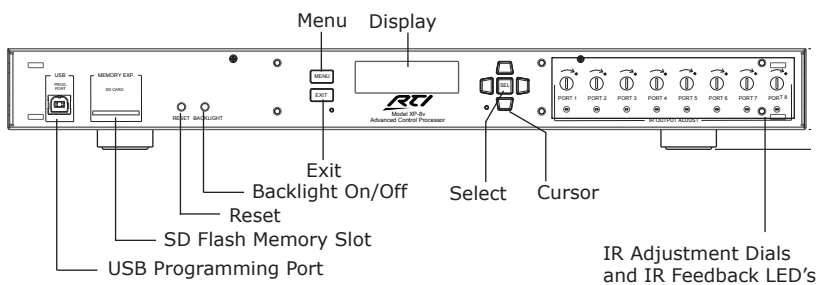
The XP-8v HDMI video output may be connected to an HD display or matrix switch to allow an on screen display (OSD) interface. Programmed in *Integration Designer* and used in conjunction with RTI user interfaces, the OSD interface provides a visual representation of the control and feedback status of the system.

NOTE: Supports video output at 720p/1080p (NTSC/PAL)

POWER SUPPLY

To power the XP-8v, use the supplied 12VDC/1Amp power supply.

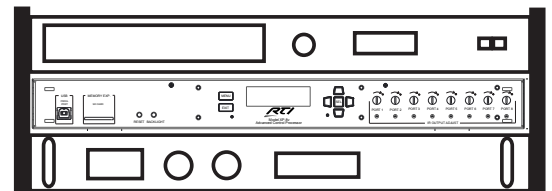
XP-8v Front



MOUNTING

The XP-8v ships with four removable feet that allow the unit to be placed on a flat surface. The XP-8v can also be mounted in a component rack as part of a comprehensive control system. Remove feet before mounting in a rack.

Rack Mount Option



Product Contents

- One (1) XP-8v Advanced Control Processor
- One (1) Power supply (12V, 1A)
- Eight (8) RJ45 to DB9 serial adaptors
- Two (2) Rack ears (2) with screws (8)
- Six (3) Terminal blocks (2 x 16-position, 1 x 4-position)
- One (1) Reference guide
- One (1) MAC address card

Safety Suggestions

Read and Follow Instructions. Read all safety and operating instructions before operating the unit.

Retain Instructions. Keep the safety and operating instructions for future reference.

Heed Warnings. Adhere to all warnings on the unit and in the operating instructions.

Heat. Keep the unit away from heat sources such as radiators, heat registers, stoves, etc., including amplifiers that produce heat.

Power Sources. Connect the unit only to a power supply of the type described in the operating instructions, or as marked on the unit.

Power Cord Protection. Route power supply cords so that they are not likely to be walked on or pinched by items placed on or against them, paying particular attention to the cord plugs at power receptacles and at the point at which they exit from the unit.

Water and Moisture. Do not use the unit near water—for example, near a sink, in a wet basement, near a swimming pool, near an open window, etc.

Object and Liquid Entry. Do not allow objects to fall or liquids to be spilled into the enclosure through openings.

Servicing. Do not attempt any service beyond that described in the operating instructions. Refer all other service needs to qualified service personnel.

Damage Requiring Service. The unit should be serviced by qualified service personnel when:

- The power supply cord or the plug has been damaged.
- Objects have fallen or liquid has been spilled into the unit.
- The unit has been exposed to rain.
- The unit does not appear to operate normally or exhibits a marked change in performance.
- The unit has been dropped or the enclosure has been damaged.

Cleaning

To clean your XP8v, lightly dampen a lint-free cloth with plain water or a mild detergent and wipe the outer surfaces.

NOTE: Do not use harsh chemicals as damage to the unit may occur.

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received including interference that may cause undesired operation.

Industry Canada Compliance Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received including interference that may cause undesired operation.

Cet appareil est conforme avec Industrie Canada exempts de licence standard RSS (s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Ce dispositif ne peut causer des interférences nuisibles.
2. Cet appareil doit accepter toute interférence reçue y compris des interférences qui peuvent provoquer un fonctionnement indésirable.



DECLARATION OF CONFORMITY (DOC)

The Declaration of Conformity for this product can be found on the RTI website at: www.rticorp.com/declaration

Contacting RTI

For news about the latest updates, new product information, and new accessories, please visit our web site at: www.rticorp.com

For general information, you can contact RTI at:

Remote Technologies Incorporated
5775 12th Ave. E Suite 180
Shakopee, MN 55379
Tel. (952) 253-3100
Fax (952) 253-3131
info@rticorp.com

Service & Support

If you are encountering any problems or have a question about your RTI product, please contact RTI Technical Support for assistance (see the Contacting RTI section of this guide for contact details).

RTI provides technical support by telephone or e-mail. For the highest quality service, please have the following information ready:

- Your Name
- Company Name
- Telephone Number
- E-mail Address
- Product model and serial number (if applicable)

If you are having a problem with hardware, please note the equipment in your system, a description of the problem, and any troubleshooting you have already tried.

Please do not return products to RTI without return authorization.

Limited Warranty

RTI warrants new products for a period of three (3) years (excluding consumables such as rechargeable batteries which are warranted for one (1) year) from the date of purchase by the original purchaser (end user) directly from RTI / Pro Control (herein referred to as "RTI"), or an authorized RTI dealer.

Warranty claims may be initiated by an authorized RTI dealer using the original dated sales receipt or other proof of warranty coverage. In the absence of the receipt of purchase from the original dealer, RTI will provide warranty coverage extension of six (6) months from the date code of the product. Note: RTI warranty is limited to the provisions set forth in this policy and does not preclude any other warranties offered by third parties who are solely responsible for those other warranties.

Except as specified below, this warranty covers defects in product material and workmanship. The following are not covered by the warranty:

- Product purchased via unauthorized sellers or internet sites will not be serviced—regardless of purchase date.
- Damages caused by accident, misuse, abuse, neglect or acts of God.
- Cosmetic damage, including, but not limited to, scratches, dents and normal wear and tear.
- Failure to follow instructions contained in the Product Installation Guide.
- Damages due to products used in an application or environment other than that for which it was intended, improper installation procedures or adverse environmental factors such as incorrect line voltages, improper wiring, or insufficient ventilation.
- Repair or attempted repair by anyone other than RTI and Pro Control or authorized service partners.
- Failure to perform recommended periodic maintenance.
- Causes other than product defects, including lack of skill, competence or experience of user.
- Damage due to shipment of this product (claims must be made to the carrier).
- Altered unit or altered serial number: defaced, modified or removed.

RTI Control is also not liable for:

- Damages caused by its products or for failure of its products to perform, including any labor costs, lost profits, lost savings, incidental damages, or consequential damages.
- Damages based upon inconvenience, loss of use of the product, loss of time, interrupted operation, commercial loss, any claim made by a third party or made on behalf of a third party.
- Loss of, or damage to, data, computer systems or computer programs.

RTI's liability for any defective product is limited to repair or replacement of the product, at the sole discretion of RTI.

In cases where the warranty policy conflicts with local laws, the local laws will be adopted.