It's Under Control®

Installation and Operation Guide

XP-3

Remote Control Processor

RTI

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.

FC **FCC ID: MMURTI1900**

IC (Canada): 3166A-RTI1900

$C\epsilon$①

N27917

DECLARATION OF CONFORMITY (DOC)

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

SAFETY SUGGESTIONS

Read 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.

Follow Instructions. Follow operating instructions and instructions for use.

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

Power Sources. Connect only to the power supply that was included with 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 cords at plugs, at convenient 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.

Cleaning. The unit should be cleaned only as recommended in this installation and operation guide.

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:

- Objects have fallen or liquid has been spilled into the unit.
- The power supply cord or the plug has been damaged.
- 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.

WARNING!

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THE UNIT TO RAIN OR MOISTURE.

LIMITED WARRANTY

Remote Technologies Incorporated warrants its products for a period of one (1) year from the date of purchase from Remote Technologies Incorporated or an authorized Remote Technologies Incorporated distributor.

This warranty may be enforced by the original purchaser and subsequent owners during the warranty period, so long as the original dated sales receipt or other proof of warranty coverage is presented when warranty service is required. Except as specified below, this warranty covers all defects in material and workmanship in this product. The following are not covered by the warranty:

Damage resulting from:

1. Accident, misuse, abuse, or neglect.
2. Failure to follow instructions contained in this Guide.
3. Repair or attempted repair by anyone other than Remote Technologies Incorporated.
4. Failure to perform recommended periodic maintenance.
5. Causes other than product defects, including lack of skill, competence or experience of user.
6. Shipment of this product (claims must be made to the carrier).
7. Being altered or which the serial number has been defaced, modified or removed.

Remote Technologies Incorporated is not liable for any damages caused by its products or for its failure of its products to perform, including any lost profits, lost savings, incidental damages, or consequential damages.

Remote Technologies Incorporated is not liable for 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 by you for a third party.

Remote Technologies Incorporated's liability for any defective product is limited to repair or replacement of the product, at our option.

If your XP-3 Remote Control Processor needs service, please contact Remote Technologies Incorporated by telephone, fax or E-mail for return information. **Please do not return products to Remote Technologies Incorporated without return authorization**.

DISCLAIMER

TABLE OF CONTENTS

CHAPTER 1 | WELCOME

Thank you for using the XP-3 Remote Control Processor.

The XP-3 is designed to automate and enhance the operation of A/V, security, lighting, HVAC, and countless other devices in a commercial or residential environment. The XP-3 is packed with features including a variety of control options, such as two-way RS-232, relays, Ethernet, and routable IR. The processor also has a built-in 2.4 GHz ZigBee® RF transceiver for sophisticated bidirectional communication with compatible RTI remote controls. The XP-3 can also be configured to support 433MHz RF communication using additional RTI accessories and wireless remotes. For complete control in any room, the XP-3 even allows powerful two-way control with Ethernet enabled RTI in-wall controllers, and reliable one-way control with compatible RTI in-wall products.

IMPORTANT NOTES

Please read these important notes about the XP-3:

- The XP-3 should be placed in an area where it is around normal room temperature (between 60°F to 90°F).
- Avoid installing the XP-3 in a location where it can come in contact with direct sunlight.
- Do not let the XP-3 get wet. It should not be handled with wet hands or placed in an area where it could get wet.
- Do not subject the XP-3 to smoke, dust, or vibrations.
- Only use the power supply that is specified for the XP-3. Using the wrong type of power supply may result in damage.
- Do not disassemble the unit. Service of the XP-3 should be performed by authorized personnel only. Service of the XP-3 performed by unauthorized personnel will invalidate its warranty.

SOFTWARE REQUIREMENTS

The recommended minimum system requirements needed to run the *Integration Designer®* software are as follows:

- Windows XP®, Windows Vista®, Windows 7®or later version of Microsoft operating system.

CHAPTER 1 | PRODUCT CONTENTS

Contents within the box include the following items:

- One (1) XP-3 Remote Control Processor
- One (1) Installation Guide
- One (1) Universal Power Supply
- One (1) Power Cord
- One (1) RS-232 Adapter
- Two (2) Phoenix Connectors
- One (1) XP-3 Removable Antenna
- One (1) XP-3 Mounting Plate with screws

UNPACKING AND INSPECTION

After unpacking your new XP-3 Remote Control Processor, save all of the packing materials in case you ever have to ship the unit.
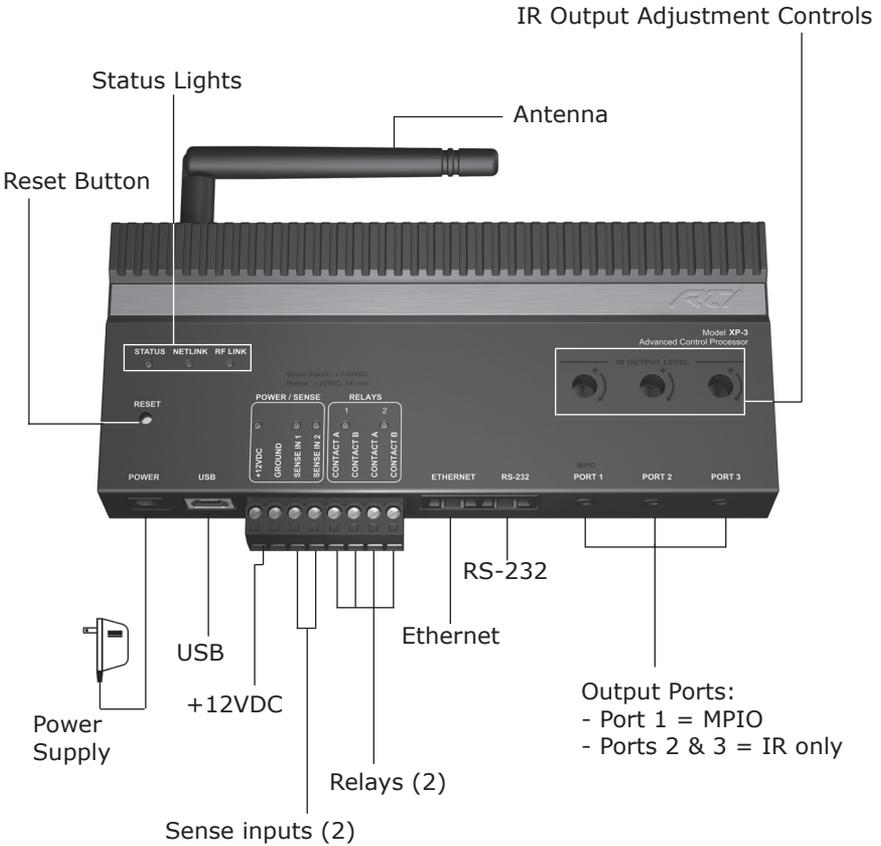
Thoroughly inspect the XP-3 and packing materials for signs of damage. Report any damage to the carrier immediately. Report any equipment malfunctions to RTI or an authorized RTI distributor.

CHAPTER 2 | FEATURES

The XP-3 provides superior quality and reliability as well as these specific features:

- Powerful 32bit, 533MHz CPU.
- 128Mb of non-volatile Flash memory stores your system configuration even when power is not present.
- One multi-purpose I/O port supports optional RTI power sensing and communications modules.
- Two IR output ports.
- Two assignable voltage sense inputs.
- Two programmable relay outputs.
- One two-way RS-232 port for bi-directional communication with supported devices.
- Integrated 10/100Base-T Ethernet port for programming, control and two-way communication with compatible devices.
- Integrated 10/100Base-T Ethernet port supports Power-over-Ethernet (POE) Class 3.
- Built-in astronomical clock for time-based events and sleep timers.
- Built-in 2.4GHz ZigBee® RF transceiver module and removable antenna.
- Compatible with industry standard IR emitters and blasters.
- Configurable for communication with RTI 433MHz RF remote controls using an RTI RM-433 antenna, and support for RTI in-wall products.
- All output ports incorporate both short-circuit and overload protection.
- Variable IR output on all ports.
- Programmed using the RTI Integration Designer Software.
- USB 2.0 and Ethernet programming.
- Field upgradable firmware.

CHAPTER 2 | FEATURES

IR Output Adjustment Controls

Status Lights

Antenna

Reset Button

STATUS   NETLINK   RF LINK

Model **XP-3**
Advanced Control Processor

POWER / SENSE   RELAYS

RESET

+12VDC   GROUND   SENSE IN 1   SENSE IN 2   CONTACT A   CONTACT B   CONTACT A   CONTACT B

POWER   USB   ETHERNET   RS-232   PORT 1   PORT 2   PORT 3

RS-232

Ethernet

USB

+12VDC

Power
Supply

Output Ports:
- Port 1 = MPIO
- Ports 2 & 3 = IR only

Relays (2)

Sense inputs (2)

NOTE: Sense input #1 can also be configured as an input
for RTI RM-433 antennas or RTI in-wall controllers.

CHAPTER 3 | INSTALLATION AND OPERATION

MOUNTING

The XP-3 can be wall mounted (details below) or free standing.

The XP-3 does not need to be mounted near the equipment being controlled. The IR output ports and the optional Power Sensor modules can be extended up to 1000 feet. If RS-232 control ports or the CM-232 Communication Module are used, the distance limitation is usually 50 feet depending on baud rate.

MOUNTING INSTRUCTIONS

To mount the XP-3 to a wall, shelf, or cabinet you must use the enclosed mounting plate.

- Level and anchor XP-3 mounting plate to desired wall, shelf, or cabinet by screwing appropriate wall, shelf, or cabinet fasteners (not included with the XP-3) through the mounting plate fastener holes.

- *When mounting the XP-3, be certain to choose a safe location (e.g. away from electrical junction boxes, circuit breakers, wet locations, etc.)*

- Affix the XP-3 to the mounting plate by placing the XP-3 channel locks located on the rear of the XP-3 over the XP-3 channel lock clips located on the front of the mounting plate. Slide the XP-3 down until the channel lock clips lock into place.

XP-3 Channel Locks

XP-3 Channel Locks

Rear of XP-3

XP-3 Mounting Plate

XP-3 Channel Lock Clips

XP-3 Channel Lock Clips

Mounting Plate Fastner Holes
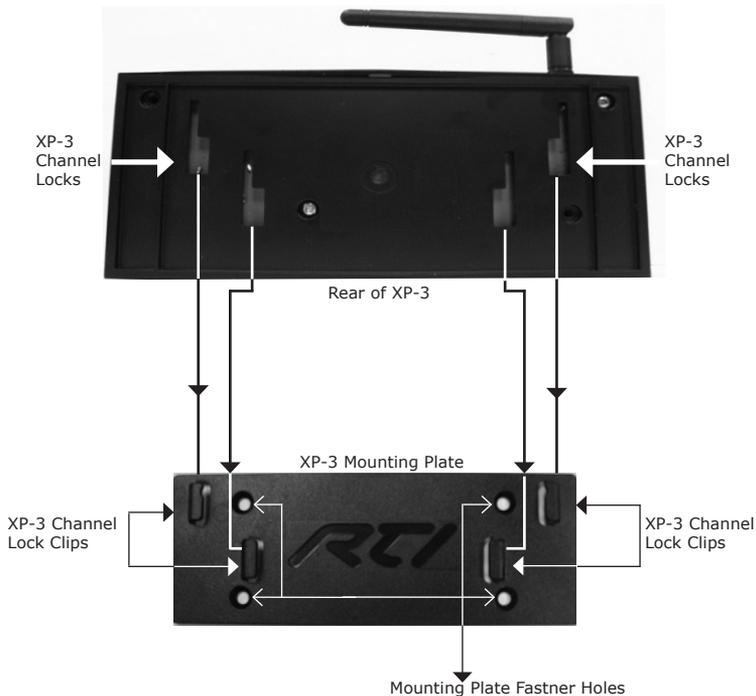
CHAPTER 3 | INSTALLATION AND OPERATION

POWER

The included AC adapter should be connected to the POWER jack on the XP-3 or the 12VDC/Ground terminals (see below). The power LED will turn-on. Use only the supplied AC adapter to power the XP-3. Using a different power adapter could result in damage to the XP-3 or poor performance.

ALTERNATIVE POWERING METHOD: POWER-OVER-ETHERNET (POE)

The XP-3 can alternatively be powered using Power-Over-Ethernet, allowing the power to be extended to the XP-3 over the same cat-5 cable that carries Ethernet communication. If this method will be used, a class 3 POE router or POE injector will need to be used.

CONNECTION OF RTI RM-433 ANTENNA

Connect an RTI RM-433 to the +12VDC, GROUND, and SENSE IN 1 terminals. The SENSE IN 1 input must be configured as an RTI trigger input using RTI's Integration Designer software. (see Connection Options diagrams for more information).

CONNECTION OF RTI KEYPAD

Connect an RTI in-wall keypad IR output to the GROUND and SENSE IN 1 terminals. The SENSE IN 1 input must be configured as an RTI trigger input using RTI's Integration Designer software. (see Connection Options diagrams for more information).

NOTE: The RTI in-wall Keypad will need its own power source, such as a power supply or CB-8 touchpanel connecting block (refer to the operation guides of these devices for cabling requirements). The RTI RK3-V in-wall Keypad, however, can be powered from the same POE switch as the XP-3.

VOLTAGE SENSE INPUTS/RTI TRIGGER INPUT

The XP-3 has two voltage sense inputs (+3-24 VDC) that are configurable within Integration Designer. During the execution of an event, macros can trigger IR commands, RS-232 commands, relay closure, etc., based on the status of the voltage sense input.

- Connect positive lead from voltage source to Sense In 1 or 2 terminal input and negative lead to Ground terminal.

NOTE: The SENSE IN 1 terminal can be configured in Integration Designer as an input for the RTI RM-433 antenna and RTI in-wall keypads.

NOTE: When configured as an RTI trigger input, it does not allow IR pass-through from external devices and does not support IR receivers.

CHAPTER 3 | INSTALLATION AND OPERATION

CONNECTING IR EMITTERS TO OUTPUT PORTS

The multi-purpose input/output (MPIO) port and 2 IR emitter ports on the XP-3 are compatible with industry standard infrared emitters and connecting blocks. Each output port is capable of driving up to two infrared emitters directly. More than two infrared emitters per port requires an amplified connecting block. A connecting block can be wired up to 1000 feet away from the XP-3 using #22 AWG (minimum) wire.

ADJUSTING IR OUTPUT GAIN

The IR output gain can be separately adjusted for each of the three output ports. The XP-3 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-3 clockwise for higher output power, or counter-clockwise for lower output power.

CONNECTING POWER SENSOR MODULES

The multi-purpose output port on the XP-3 is compatible with RTI power sensing modules (e.g. VPS-1 and SPS-1). Follow the guide included with the modules for installation instructions, and follow the instructions in the Integration Designer software for programming details.

CONNECTING COMMUNICATION MODULES

The multi-purpose output port on the XP-3 is compatible with RTI 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.

CHAPTER 3 | INSTALLATION AND OPERATION

RELAYS

The two relays in the XP-3 can provide contact closure or switching control for loads up to 5A/30VDC each. Both relays are Normally Open when not energized, but they can be programmed to behave Normally Closed as long as power is applied to the XP-3.

- For contact closure control, connect the A and B contact terminals of a relay to the desired device.

ETHERNET

This RJ-45 port allows connection to a 10/100 Base-T Ethernet network (LAN) for programming, control and two-way communication with compatible devices. Network settings such as the IP address are configurable within Integration Designer. This port also supports Power-over-Ethernet (POE) which will power the XP-3 (see powering section).
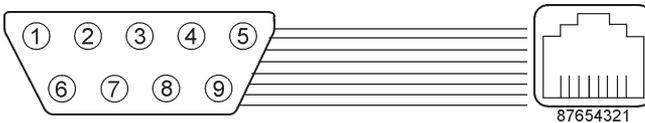
USB PORT

Used to download the Integration Designer programming software or firmware into the XP-3.

RS-232 PORT

The XP-3 is capable of two-way RS-232 communication and uses industry standard cat5 cable with RJ-45 termination (EAI-561).
NOTE: RS-232 communication is limited to 50 feet depending on the baud rate.

RJ-45 TO DB-9 ADAPTER PINOUT

87654321

DB-9 Connector Pin Out

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/Common
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	NC	Not Connected

RJ-45 Connector Pin Out

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

CHAPTER 3 | INSTALLATION AND OPERATION

PROGRAMMING THE XP-3

Please note that the XP-3 must be programmed to operate. All programming is done using RTI's Integration Designer software and is downloaded using the USB port.

After the Ethernet parameters are configured, system files can be downloaded over Ethernet.

The software allows you to create actions (e.g. commands and macros) that are associated with button presses on one or more RTI remote controls. The software transparently creates all of the system trigger codes, and generates the correct download for every device in the system. Unless you implement some of the software's advanced features, programming a system that uses a XP-3 is just as easy as programming one that doesn't.

STATUS LED

The status LED will illuminate green and stay green if there is no Integration Designer system file installed on the XP-3.

The status LED will illuminate red for a few seconds while the XP-3 is loading the Integration Designer system file that is installed. Once finished loading, the status LED will shut off.

The status LED will illuminate green if a valid system trigger code is detected. The LED will stay on while the XP-3 is busy processing the action associated with the trigger code.

The status LED will illuminate red and stay red to indicate if the XP-3 is in firmware update mode. This process is described in the firmware update wizard. If there is a firmware update available for the XP-3, it can be found on the dealer section of the RTI website (www.rticorp.com/dealers).

Net Link LED

The Net Link LED will illuminate if the XP-3 is connected to an Ethernet network.

RF Link LED

The RF Link LED blinks when establishing communication or transferring information via 2.4Ghz Zigbee RF.
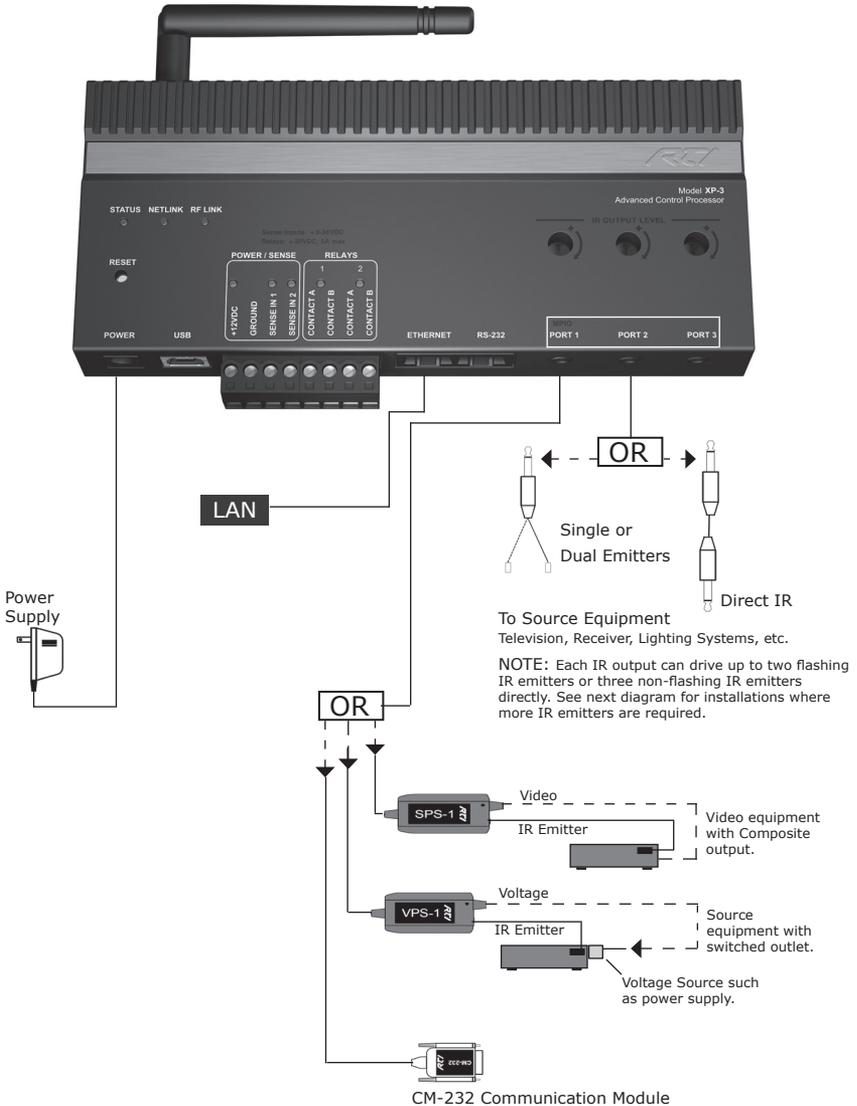
SETTING THE ZONE CODE

If the XP-3 is installed utilizing the RM-433 RF antenna, in close proximity to other RTI control systems using 433MHz RF, the system Zone Code can be changed in the Integration Designer software. This allows up to 256 separate control systems to operate in the same general area, such as multi-dwelling units or homes with more than one media system.

CHAPTER 3 | INSTALLATION AND OPERATION

CONNECTION OPTIONS

The following diagram illustrates some of the XP-3 connection options.

Power Supply

LAN

OR

Single or Dual Emitters

Direct IR

To Source Equipment
Television, Receiver, Lighting Systems, etc.

NOTE: Each IR output can drive up to two flashing IR emitters or three non-flashing IR emitters directly. See next diagram for installations where more IR emitters are required.

OR

Video

SPS-1

IR Emitter

Video equipment with Composite output.

Voltage

VPS-1

IR Emitter

Source equipment with switched outlet.

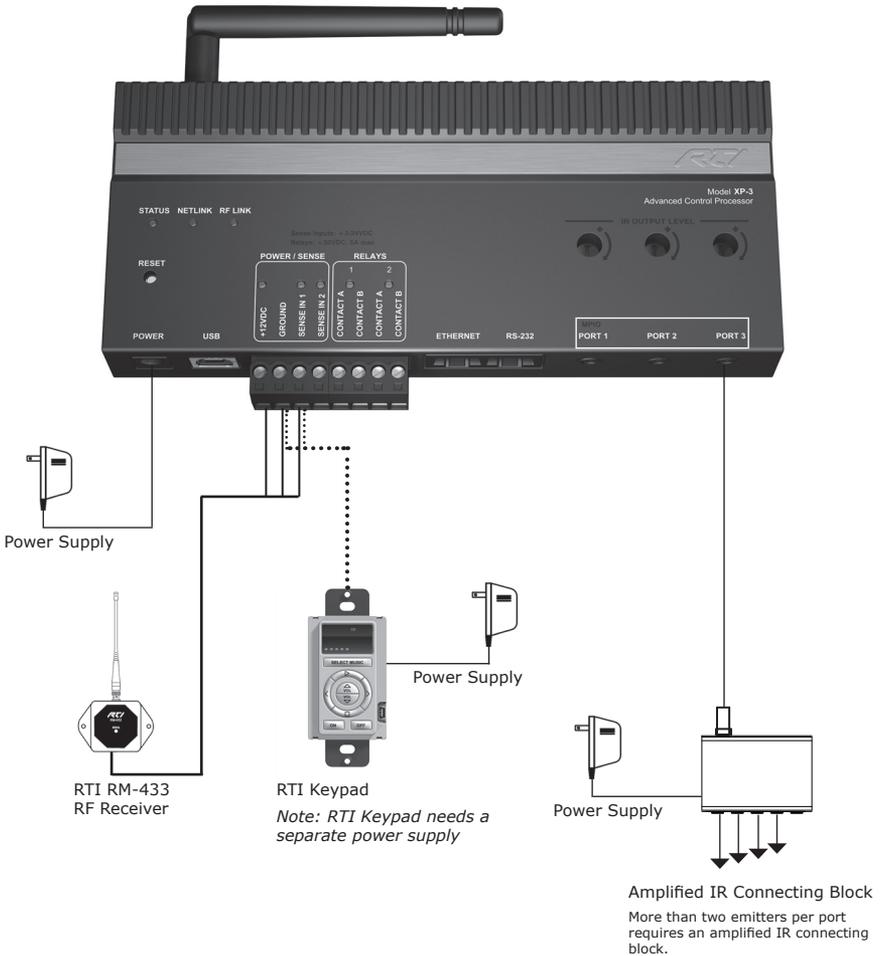Voltage Source such as power supply.

CM-232 Communication Module

Optional accessories shown are sold separately.

CHAPTER 3 | INSTALLATION AND OPERATION

CONNECTION OPTIONS

The following diagram illustrates some of the alternative XP-3 connection options.

Power Supply

RTI RM-433
RF Receiver

RTI Keypad

Note: RTI Keypad needs a separate power supply

Power Supply

Power Supply

Amplified IR Connecting Block

More than two emitters per port requires an amplified IR connecting block.

CHAPTER 3 | INSTALLATION AND OPERATION

CONNECTION OPTIONS (CONTINUED)

XP-3 connection examples:

Voltage Sense Inputs
Voltage source wired to
Sense In 1 or 2 and Ground

Relays

RS-232 Control (cat5)

RJ-45>DB-9 Adapter

Lighting, security, media
server or other supported two-
way enabled devices

Drapes

Receiver or source equipment
with switched outlet.

Voltage Source:
Such as a power supply
plugged into switched outlet.
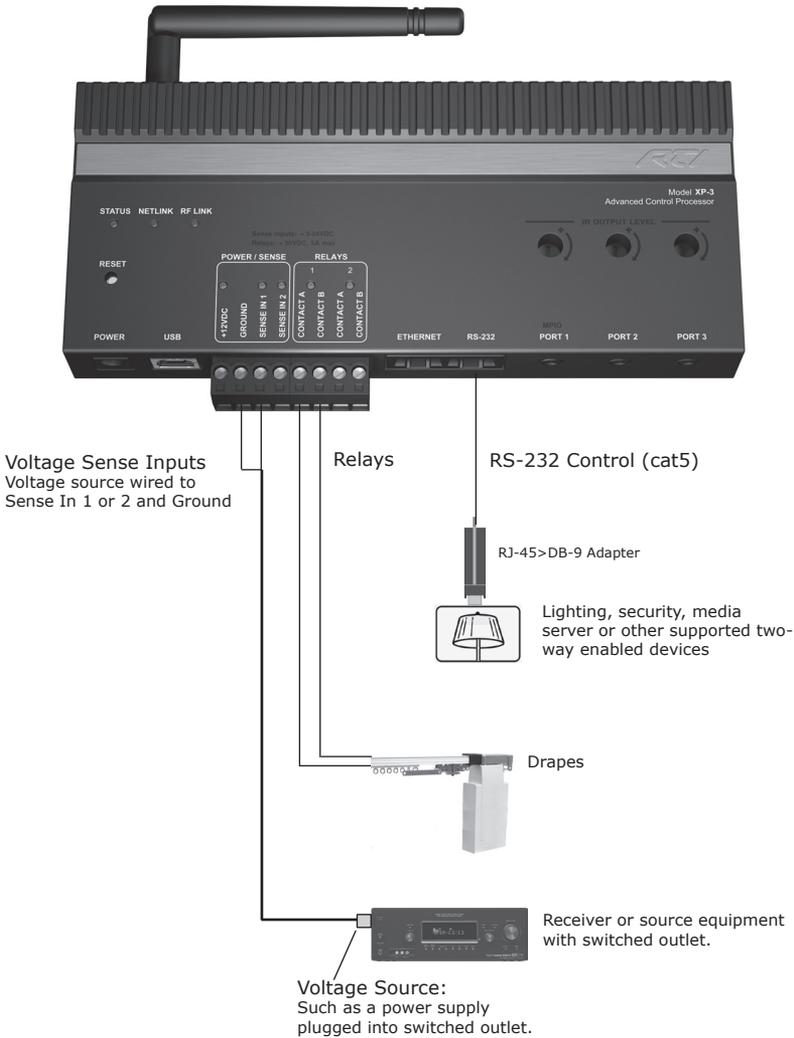
Optional accessories shown
are sold separately.

CHAPTER 4 | SPECIFICATIONS

Power Supply	+12VDC, 1A
Multi-Purpose Output Port	One, custom 3.5mm 4-conductor jack, designed for RTI modules (Sense input/RS-232 output) as well as industry standard IR emitters.
Infrared Output Ports	Two, 3.5mm jacks, compatible with industry standard IR emitters
Infrared Output Drive	100mA maximum (per port, adjustable)
Infrared Frequency Transmission Range	15kHz - 460kHz
Sense Inputs	Two, +3-24VDC
RS-232 Ports	One, Bi-directional RJ45 Connection
Ethernet Port	One, 10/100Base-T with Power-over-Ethernet (Class 3)
USB Ports	One, Type B, Programming and firmware updates
Relays	Two, 5 Amps @ 30 VDC Max
Mounting	Wall-mount or free standing
Dimensions (W x H x D)	7.0" (177mm) x 3.0" (76mm) x 1.0" (25mm)
Weight	6.4 oz. (100g)
Warranty	One Year (Parts & Labor)

All specifications subject to change without notice.

CHAPTER 5 | TROUBLESHOOTING

If you are having problems with your XP-3 Remote Control Processor, please read the information below before contacting RTI Technical Support.

If you continue to have problems, see Chapter 6 for more information on contacting RTI Technical Support.

XP-3 DOES NOT FUNCTION PROPERLY

- Make sure the original factory power supply is plugged into a known good, non-switched outlet and the connector is seated properly on the XP-3. The Power LED should be turned on.
- Verify the button on the remote is programmed to output system trigger codes. Also verify that the programmed output method matches the cabling/receiver being used.
- Try re-programming both the XP-3 and the remote control to make sure the programming is up-to-date (i.e."in sync") in each of them.
- Make sure the RF receiver or Zigbee antenna is installed correctly following the device instructions and is attached to the XP-3 properly.
- Make sure the XP-3 is mounted away from strong electromagnetic and RF energy sources, such as equipment racks, televisions and WiFi® access points
- Make sure you are using known good IR emitters, and they are attached to the correct location on the device being controlled.
- If one device is cannot be controlled, try controlling another device to determine if the issue is device specific.

POWER SENSOR MODULES ARE NOT FUNCTIONING

- Verify that the modules are programmed to use the correct output port and the proper conditional statement is used in the Integration Designer software.
- If a video sensor is being used, verify that the device being tested is actually shutting off the video when it is "powered off". For example, many DVR's will continue to deliver video even when the power is "off", if this is the case, a video sensor may not work. Also verify that a video output is being used, not an input.
- If a voltage sensor is being used with a switched outlet, verify that the outlet being tested is actually shutting off when the device is powered off. Check to see if there is a way to configure the mode of the switched outlet.

XP-3 USB PROGRAMMING PORT DOES NOT WORK

- Verify that your PC is using Windows XP or higher and have the RTI USB driver installed. If you do not have the driver installed, the RTI USB driver installation file can be found in the drivers folder in the Integration Designer program folder. Additional measures to try may be to reboot your computer or try a different USB cable.

XP-3 ETHERNET PROGRAMMING DOES NOT WORK

- Check the Net Link LED on top of the XP-3 for link and activity status.

  LIGHT ON = Valid Link

  LIGHT BLINKS = Activity

- Check Integration Designer to verify network settings are correct for your LAN.

CHAPTER 6 | SERVICE AND SUPPORT

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

www.rticorp.com

CONTACTING RTI

For general info, you can contact RTI at:

Tel. (952) 253-3100
Fax (952) 253-3131
info@rticorp.com

RTI TECHNICAL SUPPORT

At RTI, customer service and satisfaction is an utmost priority. If you are encountering any problems or have a question about your RTI product, please contact RTI Technical Support for assistance.

RTI provides technical support by telephone, fax or e-mail. For the highest quality service, please have the following information ready, or provide it in your fax or e-mail.

- 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.

If you are having a problem with software, please note what version you have installed, the operating system on your PC, a description of the problem, and any troubleshooting you have already tried.

If you are calling about a software or programming question or problem, please be at you computer when you place your call. This will considerably speed up the troubleshooting process.

For technical support or assistance with your XP-3, software, or accessories, contact RTI at:

(952) 253-3137
support@rticorp.com
www.rticorp.com

For questions regarding service or repair of your XP-3, contact RTI at:

(952) 253-3136
service@rticorp.com
www.rticorp.com

Please do not return products to RTI without return authorization.

CHAPTER 6 | SERVICE AND SUPPORT

Shipment of XP-3 for Service

RTI will pay all labor and material expenses for all repairs covered by this product's warranty. If necessary repairs are not covered by warranty, or if a unit is examined which is not in need of repair, you may be charged for the repairs or examination.

If it is necessary to ship the XP-3 for service:

- Please pack it securely (we suggest that it be insured).
- Do not include accessories such as power cords or manuals unless instructed to do so.

You must pay any shipping charges incurred in getting your XP-3 sent to RTI. RTI will pay reasonable return shipping charges via a carrier of our choice to any destination within the United States if the repairs are covered under warranty.

A copy of the original dated sales receipt must be provided whenever warranty service is required. You will need this receipt to establish the date of purchase.

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It's Under Control®

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