# IP4x4TX-RX



# ONE WAY
# RELAY CONTROL OVER IP NETWORK

INSTRUCTION BOOK

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<u>DESCRIPTION</u>

The IP4x4TX-RX Transmitter-Receiver form a remote-control system that puts one way contact relay controls onto any IP video network or cable without affecting the IP video signal. Use this to install an access control system or an emergency button out at the camera when the cost of running additional wires is prohibitive. If you have to dig a trench, break holes in walls or tear up concrete this unit can get you the remote control you need without the heavy labor and expense of adding extra wires. Then send or receive relay control signals over the same network used for the IP Video. Say you want to have a push button at a gate to announce someone at the gate or you want to open the gate with a switch in the opposite direction, you can do this with as many as 4 separate controls in one direction. This system is addressable and will work on any IP network anywhere.

The units have LED indicators for both the input switch signals and the relay output signals to monitor the status of all incoming and outgoing controls. The relay outputs can be set for normally open or normally closed contacts to work with any external equipment requirements. It is powered by 12 Volts DC and can use the same power supply as the camera.

For added security the system has a "system alarm" relay and LED to indicate loss of network communication between the two units caused by a switch or a cable failure. You get a transmitter and receiver with power supplies all included when you order the IP4x4TX-RX, and you can order this unit with supervised alarm contacts for even more security at no additional cost. When ordering a supervised system, specify the loop resistance and order part number IP4x4TXS-RXS. The IP4x4TX and IP4x4RX do not use P.O.E.

<u>MOUNTING INSTRUCTIONS</u>

The rugged one-piece mounting structure allows you to mount the units firmly in place with two screws. Select a place to mount the unit away from harsh or wet environments indoors is recommended. The IP4x4TX should be located near your originating contact switch signals with access to the network and the IP4x4RX unit near your alarm panel or the place you wish to bring the relay contacts to also with access to the network. Select a position that gives you the best access to the IP cable system to reduce the labor cost or installation.

<u>HOW TO CABLE THE IP4x4TX-RX</u>

Connect a network cable coming from the IP network switch or local IP network hub to the 8P8C connector marked "NETWORK" on the side of the IP4x4TX unit. Then at the other end of the system where the IP4x4RX is located connect another cable to the connector marked "NETWORK" and again connect it to the local network switch or hub.  It is not necessary for power to be on at this time. Next attach the alarm or control wires for up to 4 switches to the green screw terminal connector block marked "SWITCH INPUT" on the IP4x4TX. Then connect the relay outputs on the terminal block marked "RELAY OUTPUT" on the IP4x4RX to the equipment to be controlled. If you wish to use the system alarm then connect the relay output marked "ALM" to your local alarm system or any indicator you want to use and if communication between the units are interrupted the relay will operate to let you know the communication path is down.

If you are using the system on twisted pair network wires not associated with IP switches or hubs then you can use one pair of wires for each direction of relay control. For twisted pair operation connect your wire pair to an 8P8C type connector with the reversing IP pattern cable. The control signal will go anywhere an IP data signal can go even over wireless transmitters.

POWER SUPPLY INSTALLATION

Both IP4x4TX and IP4x4RX units are powered by a 12 VDC wall mount power transformer (included), however the units uses very little power and can be connected to the existing 12 VDC power supply used by the camera if needed. Connect the 12 VDC power transformer to the Green terminal block marked "PWR" the polarity is not important as the unit automatically directs the current with a diode bridge. At this time, you will see the Green LED turn on to indicated power up and if the IP4x4TX-RX units are not connected together you will see the RED "ALM" LED turn on indicating no communication between the two units.

SET-UP OF THE IP4x4TX-RX

RE-ADDRESSING THE UNITS

Both the IP4X4TX and IP4x4RX units come from the factory with pre-programed working addresses and individual MAC address for each unit. The MAC address is located on the sub-board module inside the unit and also can be read using the "DeviceInstaller" software download. One of the units is designated as the TX for transmitter and the other unit is designated as an RX or receiver and their addresses are programed to communicate only with each other. If more than one set of units are to be used on the same LAN "network" you must choose alternate addresses for the additional units. The factory loaded address for each unit are as follows:

|          | IP4x4TX       |                    | IP4x4RX       |
|----------|---------------|--------------------|---------------|
| Address: | 192.168.2.31  |                    | 192.168.2.36  |
| Sub-Net: | 255.255.255.0 |                    | 255.255.255.0 |
| Gateway: | 192.168.2.1   |                    | 192.168.2.1   |
| Port:    | 10001         | SEE PORT # WARNING | 10001         |

There are two ways to change the address and communication information, direct Ethernet connection from a PC using a downloadable access interface, or by using the WEB based interface.

DIRECT ETHERNET CABLE CONNECTION

To use a direct Ethernet connection to program new IP Addresses into the IP4x4TX and IP4x4RX units the easiest way is to use the Lantronix "DeviceInstaller" utility. You can download it at: WWW.LANTRONIX.COM. Click on "KNOWLEDGE & SUPPORT", then "TECHNICAL SUPPORT", and down load the "STAND-ALONE DEVICEINSTALLER". This downloaded program will allow you to Locate the units on a network and Change the units IP Addresses when they are powered up. To change the configuration of the XPORT data sub-board you must install the reset jumper located next to the XPORT module on the data sub-board. For any programming this jumper must be installed on the two pin connector and then for proper operation of the device the jumper must be removed and hung on one pin for storage.

If you are connected to either the IP4x4TX or the IP4x4RX unit you can use the DeviceInstaller utility to view and change the addresses of the units. CAUTION: you must have the Ethernet card on your computer set to a static address that includes the first three octets in the existing IP4x4TX or IP4x4RX units (192.168.2.xxx) or the software will not be able to locate the devices and you must use "Straight Through" non-reversing IP cable connection and you must have the programming jumper in place inside the unit

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CONNECTION THROUGH IP SWITCHES

You can also access the units to change the address through any router by using the same method and by using a "Straight" wired IP cable connection.

THE DEVICEINSTALLER UTILITY

You can read more about use of the software utility by opening the "DeviceInstaller Help" document that downloaded with the "DeviceInstaller" utility. CAUTION: Do not change any of the operating settings other than the IP Address, Subnet Address, and Default Gateway Address. Changes can be made that will disable the operation of the devices or cause them to malfunction.

USING DEVICEINSTALLER

Once DeviceInstaller is loaded, launch the application by clicking on the Icon. A pop up "Warning: No serial ports where found on this PC" will appear, Click "OK". The software will search for devices on the network. When it is located double Click on the XPORT-05 device. The Device Info screen will appear. At the point you can re-program the IP Address, Subnet Address, and default Gateway Address by Clicking on the "ASSIGN IP" Tab. Always use the "Assign a specific IP address" method and Click on Next. Enter the IP Address, Subnet Mask (if it does not auto fill), and the Default Address. Click Next, and then Click the ASSIGN button. Then just wait for the "DONE" indication. If you change the Address of the IP4x4TX transmitter unit, you must also change the "Remote Host" address in the IP4x4RX receiver unit to match the IP4x4TX address. The "Remote Host" address can be accessed by using the DEVICEINSTALLER main page while connected to the IP4x4RX and click on "WEBHOST" and then go to "Connections" and fill in the same IP address used by the IP4x4TX unit. This action creates a "Serial Tunnel" for the data to communicate between transmitter and receiver. It is suggested that IP addresses only be changed when it is required by the system.
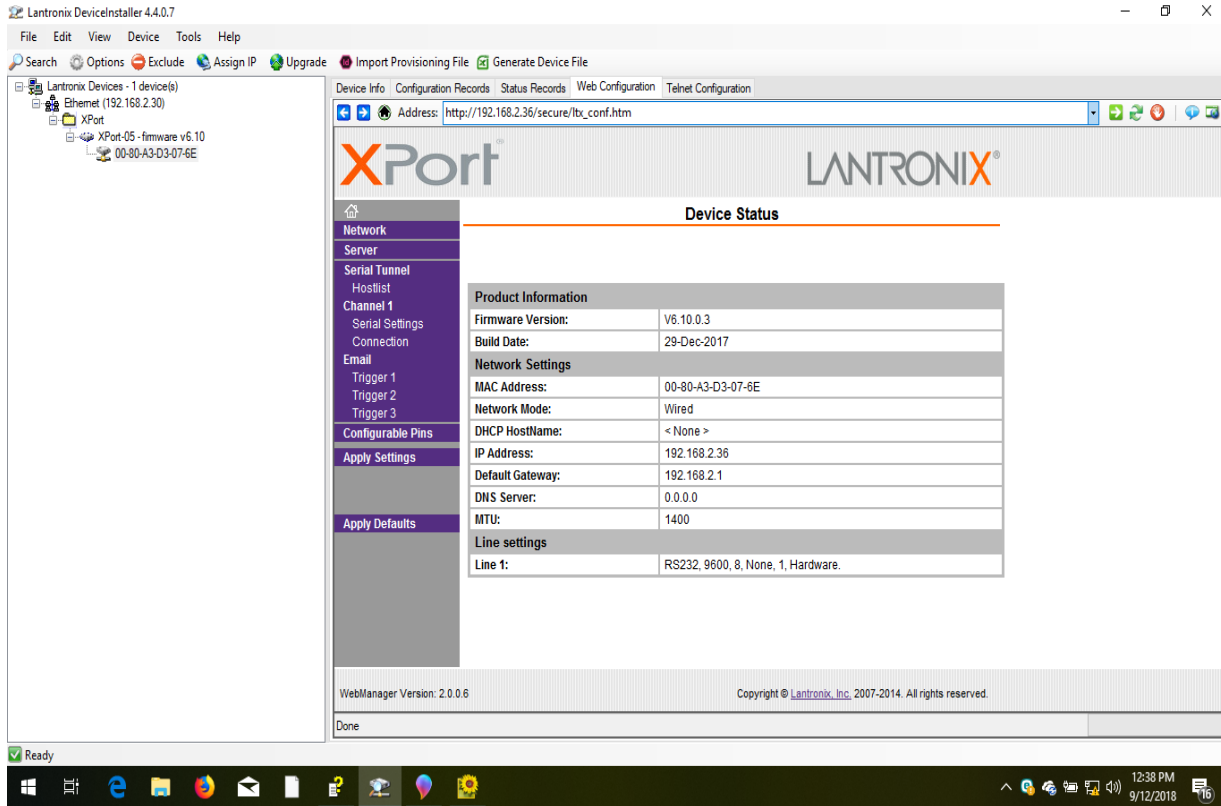
CAUTION: Do not change the Port number unless absolutely necessary. If you must change the port number be aware that there are RESERVE port numbers that can not be used. Here is a list of the restricted port numbers. If you use one of these port numbers the devices will stop working and you could become "locked out" and you may lose the ability to access the units. Here is the list of reserved, restricted port numbers:

DO NOT USE THESE PORT NUMBERS:

| | |
|---|---|
| 1-2024 | Reserved (well known ports) |
| 9999 | Telnet setup |
| 14000-14009 | Reserved for Redirector |
| 30704 | Reserved (77F0h) |
| 30718 | Reserved (77FEh) |

# WARNING: We recommend that you not use the reserved port numbers for this setting as incorrect operation may result.
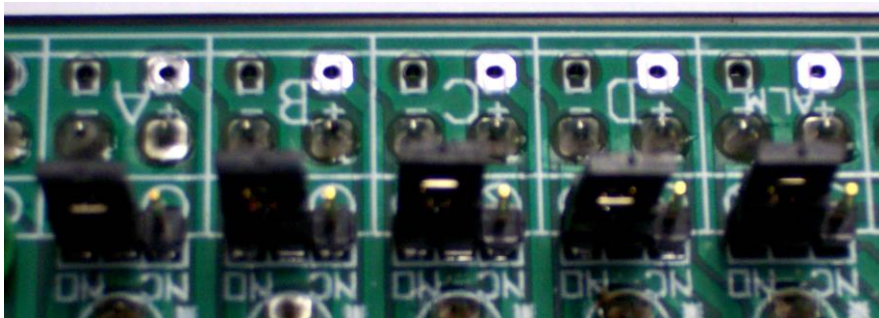
## DEVICEINSTALLER PAGE



## RELAY OUTPUT SELECTION



The relay output can be configured for normally open or normally closed contacts by using the jumper jacks located inside the unit located near the relays. The jumpers are marked "NC" for Normally Closed, and "NO" for Normally Open. Make sure that you have the jumper firmly connected to two pins, the center pin and one side pin to make the selection.

OPERATION

When the units have been installed and are operating you will see that when a switch contact on one IP4x4TX is closed a green LED will lite up indicating the condition of the input switch also the relay on the other IP4x4RX closes with another LED to indicate the condition of the relay. Through the network cable the alarm sense is relayed to the alarm panel or other equipment directly. Either remote control or telemetry can be accomplished on the same network cable being used by the IP video camera. If there is a power failure on the IP4x4RX the system alarm relay will release indicating an alarm condition and alerting you to a system communication failure.

CARE AND MAINTENANCE

There is no routine maintenance or calibration required with this equipment. There are no controls that require adjust inside the box. Open the box if necessary, only to choose the desired operating configuration and relay output sense or for network addressing.

APPLICATIONS (WHERE TO USE THE SYSTEM)

This system can be used anywhere that a network cable or twisted pair wires exists. For access control, this unit can be used to install a button at a gate to get someone's attention, or attach a button in the reverse direction to be used to open the gate. For industrial applications, it can be used to return contact information uses on equipment such as over temperature switches, pressure failure alarms, proximity alarms, or any switch control information. For security applications, any alarm information can be returned and control of doors or gate in the access control environment can be used.

EQUIPMENT OPTIONS

At the time of order, you can purchase this equipment in these configurations:

IP4x4TXS-RXS          Configured for "Supervised" contacts. This uses a predetermined Loop Resistance and must be specified at the time of order. Supervised units require a specific resistance in the loop for a valid normal alarm state. Any other resistance either higher or lower will be treated as an open loop.