

# IP4x4



## REMOTE CONTROL OVER IP VIDEO

INSTRUCTION BOOK

IB6467-01  
7-7-2014

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## DESCRIPTION

The IP4x4 is a remote control system that puts two way contact relay controls onto any IP video cable without affecting the IP video. 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. Then send and receive relay control signals both ways over the same network cable used for the IP Video. The IP4x4 can be use any twisted pair wire and does not require an IP signal to work. Say you want to have a push button at a gate to announce someone at the gate. Then you want to open the gate with a switch in the opposite direction, you can do this with as many as 4 different controls in both directions. That is a total of 8 controls on the same network cable that brings you the IP video signal.

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 signals. The relay outputs can be set for normally open or normally closed contacts to work with any external equipment requirements. It is powered by 24 Volts AC or DC and can use the same power supply as the camera. This unit is also available in a 12 VDC version at no additional cost, use part number IP4x4-12 at time of order.

For added security the system has a two way “system alarm” relay and LED to indicate loss of communication between the two units caused by a signal disconnect or a cable failure. You get both transceivers with power supplies all included when you order the IP4x4, 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 IP4x4S. The IP4x4 will pass “P.O.E. on data”, when the P.O.E. is used on the Video lines 1,2 3,6. Lines 4,5 and 7,8 are terminated.

## MOUNTING INSTRUCTIONS

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. One IP4x4 should be located near your originating contact switch signals and the other unit near your alarm panel or the place you wish to bring the relay contacts to. Select a position that gives you the best access to the IP cable the system and reduces the labor in installation.

## HOW TO CABLE THE IP4x4

Connect the network cable coming from the IP video camera to the 8P8C connector marked "CAMERA/NVR". Next connect a network cable to the other 8P8C connector on the IP4x4 unit marked "CABLE". This cable will span the distance between the two units. Then at the other end of the system where the second IP4x4 is located connect this same cable to the connector marked "CABLE" at the far end IP4x4. To complete the cable installation, connect a network from the connector marked "CAMERA/NVR" to the Network Video Recorder or the receiver equipment. It is not necessary for power to be on at this time, the IP video path will only be interrupted during the cable attachment. If no IP video source is being used the remote control system will still operate without the IP video. In fact the remote control system does not need the IP video to operate and can be used on any available twisted pair wire system. Next attach the alarm or control wires for up to 4 switches to the green screw terminal connector block marked "SWITCH INPUT". Then connect the relay outputs of the terminal block marked "RELAY OUTPUT" 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 if communication between the two units in interrupted this relay will operate to let you know the communication path is down.

## POWER SUPPLY INSTALLATION

Both IP4x4 units are powered by a 24 VAC wall mount power transformer (included), however the IP4x4 uses very little power and can be connected to the existing 24VAC power supply used by the camera if needed. Connect the 24 VAC power transformer to the Green terminal block marked “PWR”. At this time you will see the Green LED turn on to indicated power up and if the two IP4x4 units are not connected together you will see the RED “ALM” LED turn on and start to flash indicating no communication between the two units. A 24VDC power source can also be used if available.

## SET-UP OF THE IP4x4

Both IP4x4 units are transceivers that communication in each direction to send and receive contact remote control relay signals. However each unit must be configured at an “A” or “B” unit n order to communicate with each other. One unit is configured as an “A” unit and the other one at the far end is configured as a “B” unit. This is done so that straight network cable without a reversal can be used between the two units.

The units are shipped from the factory as a pair, one configured as an “A” and the other as a “B” unit and are ready for use as a pair. However if you have moved the units from one installation to another or the units become mixed up you can change the configuration easily. Inside the unit there are configuration jumpers that can be set in the field manually.

To change the unit configuration jumpers remove the four screws in the outer most corners of the top lid. This can be done with all the wire and cable connections intact. Lift the lid and locate the four jumpers associated with “J1” and “J2”, these are the configuration jumpers. When configuring the units set the jumpers for both J1 and J2 for “A” on one unit and for the other unit used at the opposite end of the system set the jumpers “J1” and “J2” for “B” in this way the two units will communicate with each other.

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 shure 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 IP4x4 is closed a green LED will lite up indicating the condition of the input switch also the relay on the other IP4x4 closes with another LED to indicate the condition of the relay and vise versa for the other direction. Through the network cable the alarm sense is relayed in both directions to the alarm panel or other equipment directly. Both remote control and telemetry can be accomplished on the same network cable being used by the IP video camera. If there is a power failure on the IP4x4 the IP video path will not be obstructed. At the same time the system alarm relay will release indicating an alarm condition and alerting you to a system communication failure.

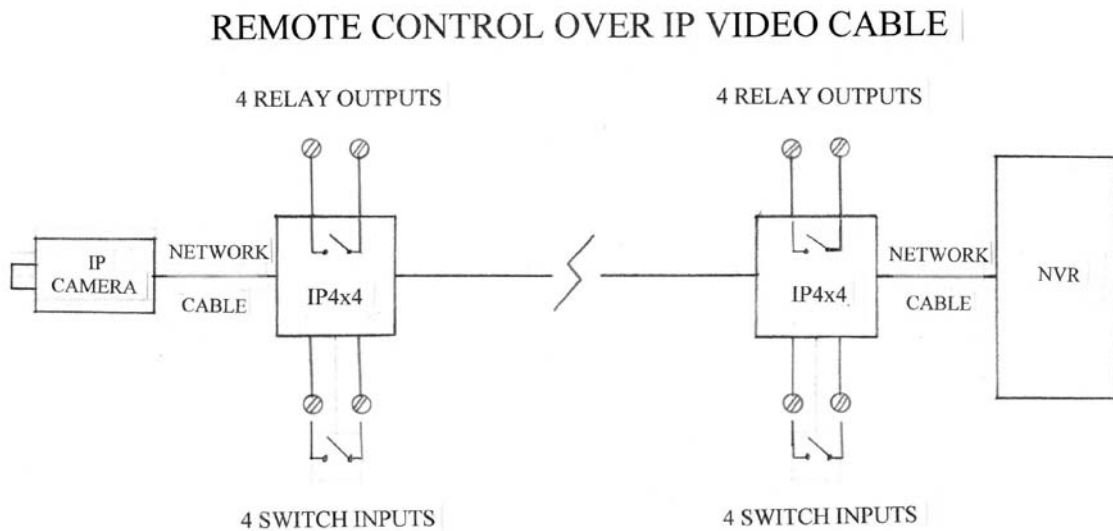
## CARE AND MAINTENANCE

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.

## 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, then attach a second 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.

## BLOCK DIAGRAM



## **IP4x4 BLOCK DIAGRAM**

## EQUIPMENT OPTIONS

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

- IP4x4S      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.
- IP4x4-12      Configured for use with a 12 Volt DC power supply.
- IP4x4-12S      Configured for both Supervised and 12 Volt power supply use.
- IP4x4isb