ATU-8D / ARU-8D

DIGITAL ALARM TRANSMITTER/RECEIVER

INSTRUCTION BOOK

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DESCRIPTION

These devices transmit and receive alarm and control signals encoded on video in coaxial cable or microwave. You can insert your alarm and control signals anywhere a video signal is being used including optical laser transmission. Alarm and control signals may be carried over any distance by the video signal. The system provides video when no video is present to maintain alarm continuity.

The ATU-8D ALARM TRANSMITTING UNIT and the ARU-8D ALARM RECEIVING UNIT together make up an 8 channel alarm and control system. The alarm and control signals are inserted onto the first available visible picture line of the video signal so that it will pass through any video compression system. The video on the selected line is first stripped of its picture information and then the contact information is inserted. The system can be selected to strip off the contact information after the receiver has decoded the line.

Each pair of ATU-8D / ARU-8D will transmit 8 alarms. Five sets of units may be connected to any one video channel, allowing 40 contact closure signals to be transmitted on one video signal.

A system alarm will operate upon loss of power to either terminal or loss of transmission path (cable cut). In the event of power failure the video through-put is by-passed. An internal video sync generator takes over and maintains continuous alarm system operation in the event of video signal failure. Contact closures to the ATU-8D input will be repeated as contact closures at the ARU-8D output.

The system is housed in a black ABS enclosure that has a UL flame rating of 94-VO and is powered by any 24VAC power transformers. The system has provisions for 24VDC battery back-up and an LED power indicator light to help installation.

MOUNTING INSTRUCTIONS

The rugged one piece mounting structure allows you to mount the unit firmly in place with two screws. Select a place to mount the unit away from harsh or wet environments, indoors is recommended. The ATU-8D should be located near your originating signals and the ARU-8D near your alarm panel or the place you wish to bring the signals to. Select a position that gives you the best access to cable the system and reduces the labor in installation.

HOW TO CABLE THE ATU-8D

Connect the video cable you wish to use to the "VIDEO IN" BNC connector and connect the cable going to the ARU-8D to the "VIDEO OUT" BNC connector. It is not necessary for power to be on at this time, the video path will only be interrupted during the cable attachment. If no video source is being used, be sure to terminate the "VIDEO IN" with a 75 ohm termination. The video must either be connected to a video camera or be terminated with a 75 Ohm termination. Next attach the alarm or control wires for each station to the green connector block marked A through H. Each pair of screw terminals marked A through H are LOOP inputs. Attach your contact closures to these screw terminals.

HOW TO CABLE THE ARU-8D

Connect the video cable you are using to the "VIDEO IN" BNC on the ARU-8D and the "VIDEO OUT" BNC goes to the monitor, recorder or other video equipment. **BE SURE TO TERMINATE THE END OF THE VIDEO CABLE WITH A 75 OHM TERMINATION OR PROPERLY TERMINATED INTO OTHER EQUIPMENT.**

Next attach the alarm or control wires for each station to the green connector block marked A through H. These wires can go to your alarm panel or control device. Each pair of screw terminals marked A through H are the output of relay contacts. The outputs from connector block A through H will duplicate the signals from the ATU-8D inputs. A contact closure at A of the ATU-8D will result in a contact closure at A of the ARU-8D and so on.

POWER SUPPLY INSTALLATION

The ATU-8D and ARU-8D are powered by a 24 VAC wall mount power transformer. Connect the 24 VAC power transformer to the Green terminal block marked AC 24V. At this time you will see the Green LED turn on to indicated power up, it will be on or be flashing on and off, depending on the video status. A 24VDC power source can also be used if necessary.

BATTERY BACK-UP OPERATION

In high security installations it is advisable to connect battery back-up. Use a 24VDC lead acid or gel-cell battery pack and connect the wires to the green connector block marked +/- BATT. Be careful to observe the battery polarity. After installation of battery back-up the unit will operate during a power outage. During a black-out or even a brown-out the power for the unit will automatically transfer to battery and then back again to the AC power when power returns.

SET-UP OF THE ATU-8D AND ARU-8D

Both units can operate on 5 separate Lines. The units are shipped on the standard Line 20. If you wish to use the units on a different line or wish to operate more than one unit on the same video signal, then it is necessary to program the new lines. Programming a new line is done with Jumper Jacks on the inside of the box. Open the box by removing the 4 screws in the outer most corners of the box. Lift up the lid and look for the Black selection jumpers, there are 5 of them near the selection table printed on the PC Board or see the instruction manual line selection page. Select the line you wish to operate on and arrange the jumpers to select that channel. You must select the same channel for both ATU-8D and ARU-8D so they will work together. As many as 5 ATU-8D and ARU-8D units can be used on the same video signal by programming them to different lines. When the ARU-8D is on the same channel as an ATU-8D with the power applied the Green LED on the ARU-8D will stop flashing and stay on. This indicates that data is being received and the two devices are communicating. After main-board selection of the operating line is accomplished you must now select the line stripper for operation on the same line.

DATA LINE AND STRIPPER LINE SELECTION

See the LINE STRIPPER SELECTION SECTION on the next page.

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X = Jumper ON          X = Switch ON
0 = Jumper OFF         0 = Switch OFF

FLD X = ON  = field 2
FLD 0 = OFF = field 1
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LINE#	JUMPERS (MAIN BOARD)					STRIPPER SWITCH (SUB-BOARD)							
	1	2	3	4	FLD	1	2	3	4	5	6	7	8
10	X	X	X	X	X	0	0	X	X	X	X	X	X
11	0	X	X	X	X	X	X	0	X	X	X	X	X
12	X	0	X	X	X	0	X	0	X	X	X	X	X
13	0	0	X	X	X	X	0	0	X	X	X	X	X
14	X	X	0	X	X	0	0	0	X	X	X	X	X
15	0	X	0	X	X	X	X	X	0	X	X	X	X
16	X	0	0	X	X	0	X	X	0	X	X	X	X
17	0	0	0	X	X	X	0	X	0	X	X	X	X
18	X	X	X	0	X	0	0	X	0	X	X	X	X
19	0	X	X	0	X	X	X	0	0	X	X	X	X
20	X	0	X	0	X	0	X	0	0	X	X	X	X
21	0	0	X	0	X	X	0	0	0	X	X	X	X
22	X	X	0	0	X	0	0	0	0	X	X	X	X
23	0	X	0	0	X	X	X	X	X	0	X	X	X
24	X	0	0	0	X	0	X	X	X	0	X	X	X
25	0	0	0	0	X	X	0	X	X	0	X	X	X
260	–	–	–	–	–	X	0	0	0	0	0	0	0
261	–	–	–	–	–	0	0	0	0	0	0	0	0

The line stripper will strip one line both even and odd. It can be used to strip other lines by continuing the binary progression. However the ATU-8D/ARU-8D will not in-code and decode beyond line 25.

LINE STRIPPER SELECTION

Refer to the program jumper selector table on the next page. Select the line you wish to operate on. Select the first available line of active video from line 20 to line 25. Move switch settings on the ATU-8D to reflect the line you wish the contact information to be located on. When operating outside of the Vertical Interval on one of the active video lines, the stripper and the program jumpers for line operation must be selected for the same line. If not the contact information will be superimposed on active video and the system will not operate properly.

If you desire to remove the contact information on the decoded video you then must set the ARU-8D stripper switch for the same line number.

OPERATION

When the units have been installed and are operating you will see that when a contact on the ATU-8D is closed and relay in the ARU-8D closes. Through the video\data path the alarm sense is relayed to the alarm panel or other equipment directly. If there is a power failure (and no battery back-up) the video path is not obstructed by the ATU-8D. If the power fails on the ARU-8D and there is no battery back-up then a system alarm (supervision alarm) will open a contact marked SYSTEM ALARM. If a power failure or system failure occurs all contacts on the ARU-8D with go open and the system alarm contact will go open.

CARE AND MAINTENANCE

There is no routine maintenance or calibration required with this equipment. There are no controls to adjust inside the box. Open the box if necessary only to choose the desired operating channel.

APPLICATIONS (WHERE TO USE THE SYSTEM)

This system can be used anywhere that a video signal or coax cable exists. Some uses are in a CCTV camera installation, LASER OPTICAL transmission, STL microwave applications, Broadcast TV transmissions, Cable TV, Alarm and Control and many others.