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Operation Instructions

Model URA-RS232

Projector Controller Programmable Serial Device

UMA1073 Rev. 1.4

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Description

The Model URA-RS232 is a standard VGA-plus-Audio over Cat5 Receiver with the added feature of having a programmable RS-232 serial device port for the control & automation of a Projector, LCD, or any other device with serial port.

The URA-RS232 has a discrete input that senses a dry contact closure (or Voltage Level). It detects both "Low-To-High" and "High-To-Low" transitions of the 'EXT CTRL' input and issues corresponding commands out the serial port of the URA-RS232 to the serial device (projector).

The commands can be any ASCII (or non-ASCII) data with programmable delays embedded in the string. The commands can also be complex multi-part strings typical of many modern projectors.

Hall Research provides a powerful Windows® based application (available on-line) that is used to create the data files and upload it to the URA-RS232, via a supplied cable.

Features

- ✓ Compact, Reliable, and Economical
- ✓ 2 user-programmable Command Strings
- ✓ Allows multiple instances of user-defined delays within each string
- ✓ Intuitive Operation
- ✓ Windows™ software for programming available on-line
- ✓ Made in USA
- ✓ Dual color front panel LED status indicator

Operation

The URA-RS232 is designed to send a string of commands to a serial device (projector) via the serial interface, when the discrete input transitions. When the 'EXT CTRL' input transitions "High-To-Low", the dry contact is opened, the URA-RS232 will send the "OFF" string to the serial device (projector) and when the 'EXT CTRL' input transitions "Low-To-High", the dry contact is closed, the URA-RS232 will send the "ON" string to the serial device (projector).

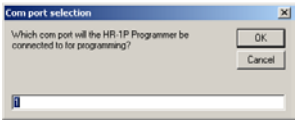
The URA-RS232 will communicate with the serial device (projector) at some baud rate specified in the user's manual of the serial device (projector). The URA-RS232 programming software will allow the user to select that baud rate for the serial device (projector). The URA-RS232 programming software will also allow the user to upload two strings to the URA-RS232. This will consist of the ON string and the OFF string. These strings are limited to 100 characters in length each. These two strings can be constructed directly in the URA-RS232 programming software. The user will then be able to upload the baud rate and the two strings to the URA-RS232. The URA-RS232 will, in turn, send out these strings to the serial device (projector) when the 'EXT CTRL' input changes state.

The user also has the ability to include a number of waits in the string of commands. For example the user may send out the commands 'CCB' and then wish to wait for 3 seconds and then send out additional commands.

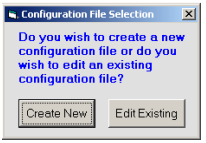
This will be explained in further detail below.

How to Create Command Strings

First, select the comm. port you will use to connect the URA-RS232 to the PC.



After you select the comm. port, you will be asked if you wish to use an existing file or create a new file. Until you have saved a file, choose "Create New" and give your new file a name.



To build the "ON" and "OFF" strings URA-RS232 programming software, start typing the ASCII commands in the "ON String" or "OFF String" windows. If you wish to insert a Wait Time in between codes, just specify the Wait Time in the Hours, Minutes, and Seconds fields and click "Insert Wait". The maximum Wait Time is 16 hrs. 59 min. 59 sec. If you need a Wait Time longer than that, just insert repeated wait commands back to back. If you need to insert a Hexadecimal byte, you must type the Hexadecimal byte into the Hex Byte window and click Insert Hex Byte. The Hexadecimal bytes can occupy the hexadecimal range of 0x00 to 0xFF.

Note!

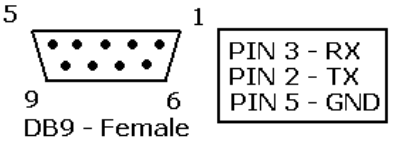
There are a few restrictions you need to be aware of when you are building your string. The Backspace key is the only way to correct/delete characters in your string. You can only Backspace from the end of the string. The Windows "Paste" function has been disabled. You may only insert a character at the end of the string. The maximum length of the ON or OFF string is 100 characters. A Wait will occupy 3 character spaces in the string. Any ASCII character input from the keyboard will increment the string length by 1. All Hexadecimal bytes will increment the string length by 1 character with the exception of the Hexadecimal byte x1B. This hexadecimal byte will occupy 2 bytes.

Uploading commands to the URA-RS232

After you have loaded a configuration file containing your “ON” string and “OFF” string or you have created your “ON” string and “OFF” string you are now ready to upload the “ON” and “OFF” strings to the URA-RS232.
Connect the URA-RS232 to the PC’s comm. port you selected earlier via the supplied programming cable. The supplied programming cable is a 6’ cable that has a female DB-9 connector that connects to the PC and the other end is a male mini-stereo connector that plugs into the URA-RS232.

Important!

You may need to use a crossover serial cable (also know as a NULL-modem cable) to connect the URA-RS232 to the device you want to control.



There are 2 types of serial devices:

1. DTE (Data Terminal Equipment) ex. Computer/ PC
2. DCE (Data Communication Equipment) e.g. Serial controlled projector, modem, or the URA-RS232.

DTE devices talk directly to DCE devices. If you have 2 DTE devices trying to talk, they need a crossover serial cable connecting them. In the same way if you have 2 DCE devices trying to talk, they will need a crossover serial cable connecting them as well. Generally DTE devices will have a male DB9 connector and DCE devices will have a female DB9 connector. You will notice that the serial cable included with the URA-RS232 has a female DB9 connector. This indicates that the URA-RS232 is a DCE device, which is why it will connect directly to a computer/PC serial port. When you are done uploading the “ON” and “OFF” strings to the URA-RS232, you will need to use a crossover or straight through serial cable to connect the URA-RS232 to your serial device depending on what type of serial device you are trying to control. Here is the pinout for the URA-RS232.

Power on the URA-RS232 and click the “Upload” button.
A message box will tell you when the upload has completed.

Connecting the URA-RS232 to the serial device

- Connect the URA-RS232 to the serial device (projector) via the serial interface using the supplied programming cable.
- When connecting the URA-RS232 to the serial device (projector) you must use a **crossover** serial cable in addition to the supplied programming cable.
- This will connect the TX line of the serial interface on the URA-RS232 to the RX line on the serial interface of the serial device (projector).
- Without a **crossover** serial cable between the supplied programming cable and the serial device (projector), the serial device (projector) will not receive any commands from the URA-RS232.
- Connect the dry contact closure wiring to the EXT CTRL input to the URA-RS232.

SPECIAL CONNECTION INFORMATION:

- By default the URA-RS232 is configured to detect a **CONTACT** or a **NON-ISOLATED VOLTAGE**. By special request at the time of the order, the unit can be configured to detect an **OPTICALLY ISOLATED VOLTAGE**.
- Both the **CONTACT/NON-ISOLATED** and **OPTICALLY ISOLATED** configurations use the EXT CTL jack for detection of the signal.
    - **For Contact/Non-Isolated Voltage configurations** of the unit, ALWAYS ensure that if you supply a voltage to the EXT-CTL jack, it is applied as CENTER POSITIVE in the range of 3-24 vDC. The device will **not** sense 0 volts by unplugging the EXT CTL jack. The sensing circuit is normally 'pulled' high. This means that in order to detect the 'No-Voltage applied' condition, your circuit must represent a low resistance.
    - **For OPTICALLY ISOLATED configurations**, ALWAYS ensure that the voltage is applied as a CENTER POSITIVE in the range of 3-9 vDC. This voltage should be isolated from the units Supply Voltage.
- Failure to observe these warnings may result in damage to the unit and void your warranty

Connect the supplied Power Supply (6 vDC) to the URA-RS232 and you are done.

Front Panel Status Indicator

The front panel has a convenient dual color LED that is used to indicate which of the two command strings has been issued last from the URA-RS232. If the last command sent to the device was an “ON” string then the LED will be solid Green. If the last command sent to the device was an “OFF” string then the LED will be Red.
Anytime the unit is powered on, the LED will blink Red and Green until a string is sent out.
While the “ON” string is being sent out, the LED will blink Green.
When the “ON” string is done being sent out, the LED will be a solid Green.
While the “OFF” string is being sent out, the LED will blink Red.
When the OFF string is done being sent out, the LED will be a solid Red.
After uploading commands to the URA-RS232 via the URA-RS232 programming software, the front panel LED will blink Red and Green until a string is sent out the serial port.

Federal Communications Commission Statement

This equipment generates; uses and radiates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. This equipment has been designed to comply with the limits for a Class A computing device, pursuant to Part 15 of the FCC rules. Harmful interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.
If necessary, you should consult the place of purchase or and experienced radio/television technician for additional suggestions.

Warranty

HRT warrants that the supplied equipment is free from defective workmanship and material. Subject to the agreements set forth, will repair or replace, at its option, the defective components for a period of 2 years after purchase. The following conditions apply to the Warranty:

Warranty void if item subject to improper use, negligence, or unauthorized modification
Instructions must be followed in obtaining RMA number as explained below

Any defective part should be returned, insured and freight prepaid, to Hall Research, with the following:

- Return Material Authorization Number (RMA#)
- Description of failure, as detailed as possible
- Shipping address and contact name and phone number

Limited Liability

IN NO EVENT SHALL THE DIRECT VENDOR'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT OR ITS DOCUMENTATION

Products Designed and Made in the USA

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