

Crestron **CNXLIR**
Infrared Learner

Operations Guide



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Infrared Learner: CNXLIR

Introduction

Features & Functions

The CNXLIR is an IR Learner used to "learn" the IR codes that control a piece of equipment.

Functional Summary

- Able to learn codes from advanced / higher data-rate IR devices using built-in IR receiver
- Automatically learns multi-function remote codes
- Capable of learning codes from devices using higher IR frequencies
- Digitizes IR codes for processing by DEAL for Windows® software
- Test learned codes using built-in IR output with included STIRP Infrared Probe

The CNXLIR learns the IR/serial codes that control a piece of equipment and stores them to a PC-based database for use in programming a control system with SIMPL Windows programming software. The CNXLIR is used in conjunction with the Crestron DEAL (Driver Editor And Learner) for Windows software to learn these codes and allow the programmer to create a custom IR device driver file for use in a control system program.

The codes learned by the CNXLIR are pulses of infrared (IR) light issued from a hand-held remote control. The CNXLIR digitizes the IR codes so they can be processed by the DEAL for Windows software.

Once the codes are learned, the software can convert them into a custom IR device driver file. This device driver file can then be incorporated into a Crestron® control system program. The Crestron control system will control equipment by emitting the same IR codes as a remote control or other IR device. DEAL for Windows can also use the CNXLIR to transmit the learned IR codes for testing purposes.

Crestron's DEAL for Windows software operates the CNXLIR. DEAL's friendly Windows® environment guides users quickly through the learning and testing functions. DEAL for Windows, version 3.0 is recommended for users who want to take full advantage of the CNXLIR's capabilities. Previous versions of DEAL for Windows will interface with the CNXLIR, but with limited capabilities.

Additionally, DEAL for Windows interacts with the Crestron Database that contains over 1600 device driver files.

Specifications

Specifications for the CNXLIR are listed in the following table.

CNXLIR Specifications

| SPECIFICATION | DETAILS |
|--|---|
| Required Power Supply Domestic AC Adapter International AC Adapter | 12 VDC, 0.5 A, 120 VAC Input (p/n PW-1205) 12 VDC, 1.0 A, 230 VAC Input (p/n PWI-1210) |
| Communications | RS-232 (software handshaking enabled) |
| DEAL for Windows | Version 1.0 or later ^{1,2} |
| Dimensions and Weight | Height: 1.78 in (4.53 cm) Width: 7.07 in (17.95 cm) Depth: 6.33 in (16.06 cm) Weight 2.0 lb (0.9 kg) |

1. DEAL for Windows version 1.0 operates the CNXLIR with limited capabilities. Version 2.0 requires the Crestron Database version 11.7.206 or later. Version 3.0 or later requires the Crestron Database version 15.xx or later.
2. The latest software versions can be obtained from the Crestron website. Refer to the NOTE following these footnotes.

NOTE: Crestron software and any files on the website are for Authorized Crestron dealers and Crestron Authorized Independent Programmers (CAIP) only. New users may be required to register to obtain access to certain areas of the site (including the FTP site).

Physical Description

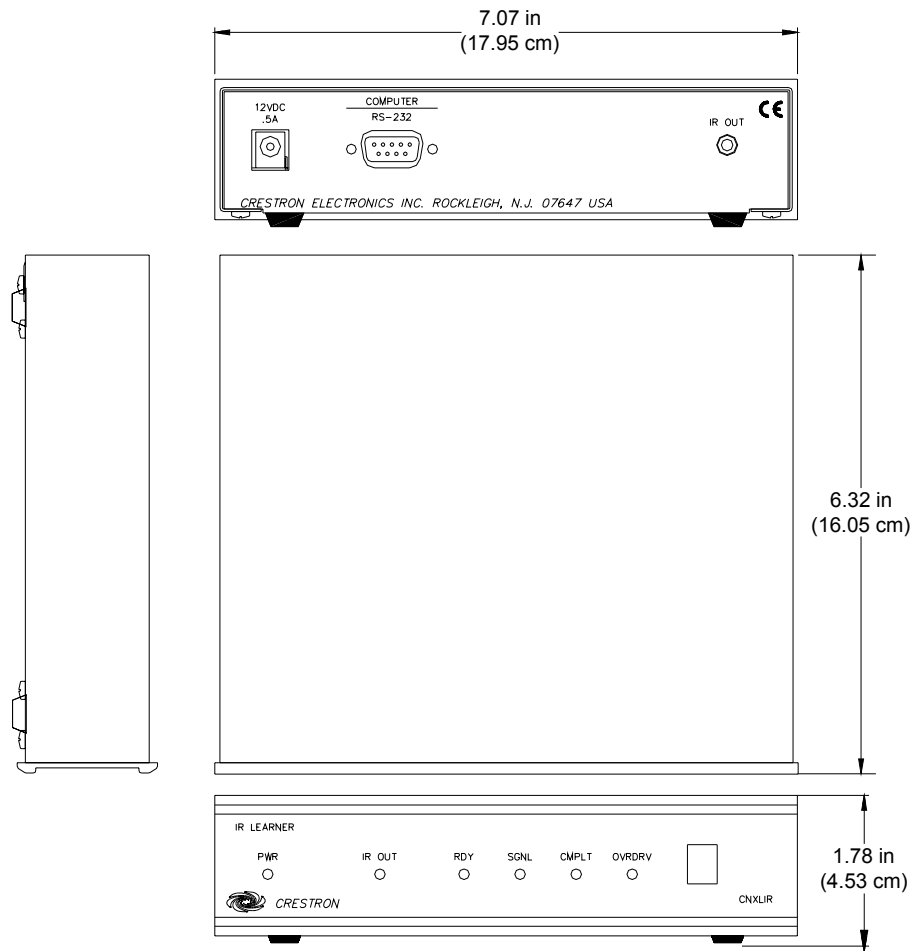
The CNXLIR is housed in a black enclosure with labeling on the front and rear panels. The front of the unit has six LEDs indicating the unit's current status. An IR receiving window is located on the front of the unit. Make sure the receiving window is positioned to avoid interference from direct sunlight and high frequency fluorescent light.

All connections are made from the back of the unit. The four rubber feet on the base of the unit are for stability and to prevent slippage. Refer to the physical views in the following diagrams for the LED and connection port locations.

CNXLIR Physical Views



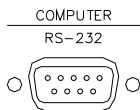
CNXLIR Physical Views



Ports

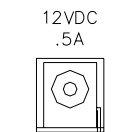
All connections to the CNXLIR are made through the ports on the rear panel. Refer to the illustrations and descriptions that follow.

COMPUTER / RS-232



The nine-pin female serial port connector communicates with a PC when "learning" codes via a standard DB9 F-M "straight through" serial cable.

12 VDC 0.5 A



The DC power connector provides external power via the Crestron 0.5 A power pack, Crestron P/N PW-1205 or equivalent (1.0 A power pack for international configurations, Crestron P/N PWI-1210 or equivalent).

IR OUT



IR OUT

The 3.5 mm connector attaches to the Crestron STIRP Infrared IR Probe (included) and is used to test learned drivers. The probe end of the STIRP is placed over a device's IR window while the other end is plugged into the IR OUT port on the CNXLIR.

Indicators

The CNXLIRs indicators, which appear on the front panel are described in the following paragraphs.

PWR (Power)

This LED illuminates when power is supplied to the unit.

IR OUT

Indicates activity on the IR OUT port of the unit. This is a visual confirmation that an IR signal is being sent from the CNXLIR.

RDY (Ready)

Indicates that the CNXLIR is waiting for an IR signal. When the CNXLIR receives an IR signal, the RDY LED goes out.

SGNL (Signal)

Indicates that the CNXLIR is receiving an IR signal.

CMPLT (Complete)

Indicates that the processing or "learning" is complete.

OVRDRV (Overdrive)

Indicates that an IR signal is too strong. When the signal is too strong, the CNXLIR does not accept the signal and the "learning" process for that particular function must be restarted.

Industry Compliance

As of the date of manufacture, the CNXLIR has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.



NOTE: 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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. 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:

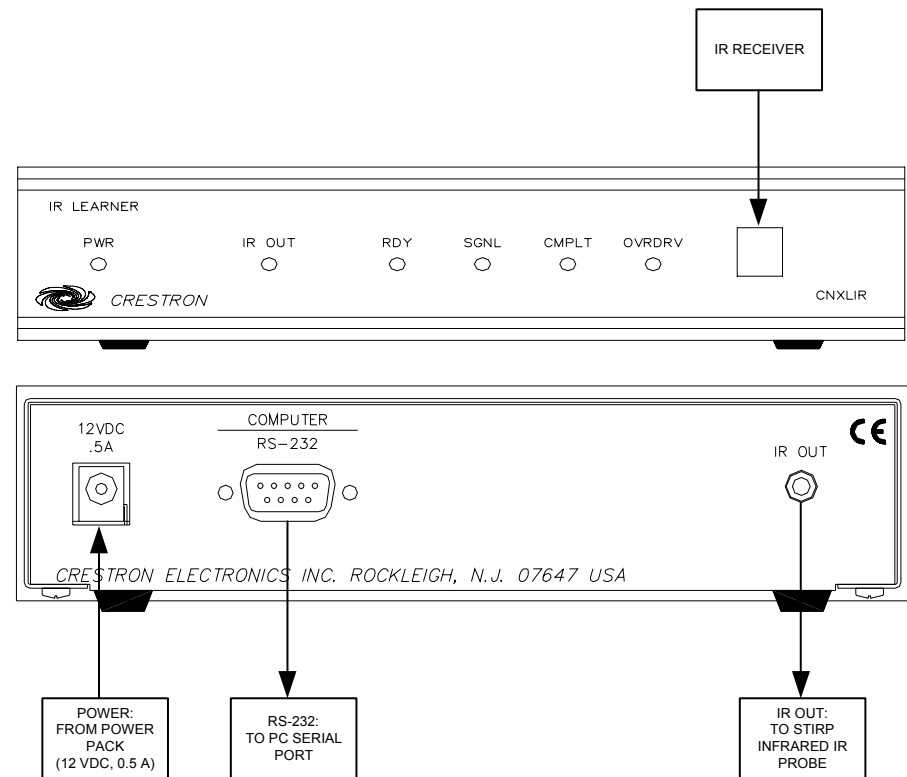
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Setup

Hardware Hookup

Refer to the following hookup diagram and, aside from attaching power last, complete the connections in any order.

Hardware Connections for the CNXLIR



DEAL for Windows

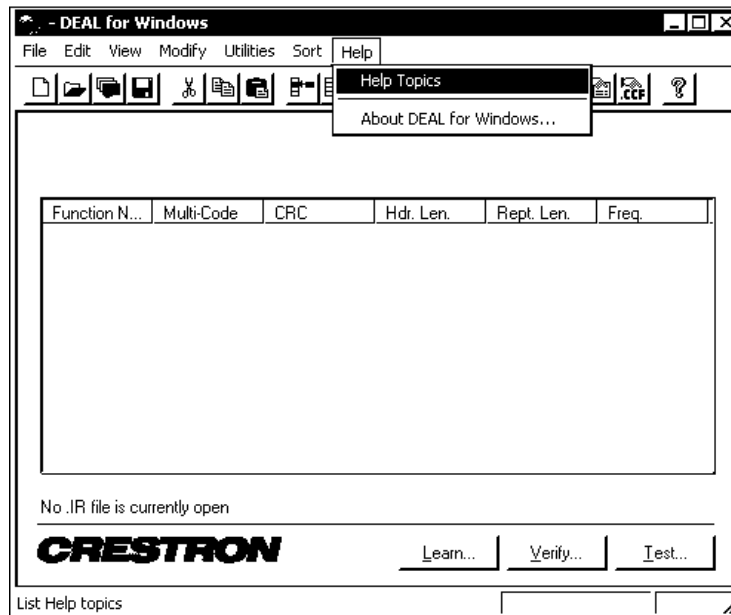
Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website. To post your own question or view questions you have submitted to Crestron’s True Blue Support, log in at <http://support.crestron.com>. First-time users will need to establish a user account.

DEAL for Windows is available from the Crestron Programming Tools CD. The latest version can be obtained from the Crestron website.

NOTE: Please refer to the DEAL for Windows HELP file for step-by-step IR learning, verifying and testing procedures.

Accessing DEAL for Windows Help



Problem Solving

Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

CNXLIR Troubleshooting

| TROUBLE | POSSIBLE CAUSE(S) | CORRECTIVE ACTION |
|------------------------------|---|--|
| PWR LED does not illuminate. | 12 V power supply not connected properly. | Make sure the power supply cord is securely installed in the 12 V power port and plugged into an outlet. |

(continued on following page)

CNXLIR Troubleshooting (continued)

| TROUBLE | POSSIBLE CAUSE(S) | CORRECTIVE ACTION |
|--|--|---|
| RDY LED or SGNL LED does not illuminate or goes out immediately in Learn mode. | CNXLIR is trying to receive stray signals (external noise such as sunlight, etc.). | Make sure the receiving window is positioned to avoid interference from direct sunlight and high frequency fluorescent light. |
| | Applying signal before CNXLIR is ready. | Wait for RDY LED before sending a signal to learn. |
| OVRDR LED illuminates. | IR signal from remote is too strong. | Increase the distance between the IR source and the CNXLIR. |
| DEAL for Windows does not communicate with the CNXLIR. | Computer connection cable is wrong type. | Make sure the connection cable is a RS-232, DB-9 "straight through" cable with hardware handshaking capability. Cable must include RTS and CTS connections. |
| | Incorrect COM port. | Select the correct COM port setting using the Preferences window (Hardware Settings tab) of the DEAL for Windows software. |
| Test equipment does not respond to IR signals delivered by CNXLIR. | Test signal is not being received. | <ol style="list-style-type: none"> 1. Reposition IR emitter and test again. 2. Relearn and verify signal. 3. Test again. |
| Test equipment does not respond to IR signals delivered from CNXLIR. | IR signal learned incorrectly. | Make sure the IR remote is held steady on a firm surface while transmitting IR codes to the CNXLIR. |
| | | Tap the button on the IR remote instead of holding the button when transmitting to the CNXLIR. |
| | | If the frequency of the learned IR remote is 455 kHz or more, check that the sample rate in the DEAL for Windows is not set to Low Sample Rate (Edit Preferences) . If DEAL for Windows is set to sample at the low rate, set it to Medium Sample Rate and relearn. |
| | Weak batteries | In DEAL for Windows, disable "Signal Optimization" (Edit Preferences). |
| | IR remote batteries may be weak. Replace batteries in IR remote and relearn. | |
| IR code does not verify. | IR device could be a "multi-code" remote. | Refer to the DEAL for Windows help file that is included with DEAL for Windows. |

(continued on following page)

CNXLIR Troubleshooting (continued)

| TROUBLE | POSSIBLE CAUSE(S) | CORRECTIVE ACTION |
|--------------------------|---|---|
| IR code does not verify. | Button to be learned may be pressure sensitive. | Pressure sensitive keys are typically dials that are pressed in four or more directions. Since pressure sensitivity is difficult to accurately reproduce, proceed without verification. |

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling the Crestron corporate headquarters at 1-888-CRESTRON [1-888-273-7876]. For assistance in your local time zone, refer to the Crestron website (www.crestron.com) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron website to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the CNXLIR, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an "Addendum" in the Download column.

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Specifications subject to
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