

GRX-PRG (shown with cover removed)

## Description

The GRX-RS232 and GRX-PRG allow up to eight GRAFIK Eye Control Units to be interfaced with your personal computer or auxiliary audio/visual equipment via RS232. The interface can be used to execute Control Commands and allow for Status Monitoring. The GRX-PRG allows for complete programming of your GRAFIK Eye 3500 and 4500 Control Units from a PC or other RS232 device. In addition, the GRX-PRG provides an internal astronomical timeclock. Included with the GRX-PRG is Lutron's GRAFIK Eye LIAISON™ Lighting Control software that can be used to schedule events, make Super Sequences, and program GRAFIK Eye 3500 or 4500 Control Units.

**Note:** Only one GRX-PRG can be installed on the same MUX link. If additional RS232 interfaces are required, the GRX-RS232 should be used in your system.

## Features

### Control Commands

The GRX-RS232 and GRX-PRG can send commands from a PC or A/V equipment to a maximum of eight GRAFIK Eye Control Units. The following commands are available:

**Select Scene.** Select any scene on any GRAFIK Eye Control Unit.

**Scene Lock.** Prevent changes to GRAFIK Eye Control Unit(s) from any remote location.

**Request Scene Status.** Request the current scene of every GRAFIK Eye Control Unit in the system.

**Sequence.** Begin sequencing scenes 1—4 or 5—16 (DIP-switch selectable on GRX-RS232/GRX-PRG) on selected GRAFIK Eye Control Unit(s).

**Zone Lock.** Prevent permanent changes to preset levels of GRAFIK Eye Control Unit(s).

**Zone Raise/Lower.** Raise/Lower any zone on any GRAFIK Eye Control Unit.

### Set up for 3500/4500 Control Units (GRX-PRG only):

- Scenes—intensities and fade times.
- Load Types—non-dim options also available.
- Temporary Mode—scene programmability options.
- Communications—Control Units "talk" to additional Control Units and remotes.
- Zone Intensities—temporary light level changes.

### Timeclock Commands

In addition to the RS232 control commands, the following commands are available using the GRX-PRG:

**Set Time.** Set the time, date, and day for the internal timeclock.

**Report Time.** Report the time, date, and day set in the internal timeclock in the GRX-PRG.

**Select Schedule.** Select the timeclock schedule set up using the LIAISON software to be run for the current day.

**Report Schedule.** Report which schedule is being run for the current day.

**Report Sunrise/Sunset Times.** Report sunrise and sunset times for the current day.

**Super Sequence.** Start, pause, or resume a scene sequence programmed in the GRX-PRG.

Refer to the GRAFIK Eye RS232 Protocol and Command Set (P/N 040-138) for detailed descriptions of available commands. The Command Set also has information on configuring your PC or auxiliary A/V equipment for use with Lutron's RS232 Interfaces.

### Status Monitoring

The GRX-RS232 and GRX-PRG will allow a PC or auxiliary A/V equipment to monitor a GRAFIK Eye system:

**Raw Feedback.** (DIP switch 6 ON) Report all button presses and releases on all GRAFIK Eye Control Units and Accessory Controls.

**Scene Status.** (DIP switch 7 ON) Report scene status changes on all GRAFIK Eye Control Units. Scene status may be changed by Control Units, Accessory Controls, sequences, or LIAISON software (GRX-PRG only).

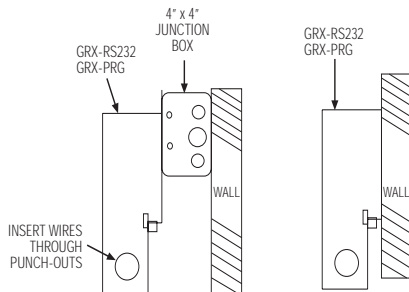
# Installation

## Important Notes

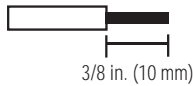
- Install in accordance with all applicable regulations.
- Do not connect line voltage/mains power to device. Improper wiring can result in personal injury or damage to the device or to other equipment.
- This control can use Class 2/PELV wiring methods. Check with your local electrical inspector for compliance with national and local codes and wiring practices.

## Mounting

1. Mount the GRX-RS232/GRX-PRG on a 4" x 4" junction box or directly on a wall as shown in the Mounting Diagram. If metal conduit is not being used, ensure proper earth/grounding of the metal casing by connecting an earth/ground wire to the earth/ground screw. Remove front enclosure cover to expose terminal blocks, DIP switches, and output status LEDs.



2. Strip 3/8 in. (10 mm) of insulation from wires. Each terminal will accept up to two #18 AWG (1.0 mm<sup>2</sup>) wires.



3. Connect wiring as shown in the Wiring Diagram. LED 1 will be lit when the MUX link is properly installed. Wires should be inserted through the circular punch-outs in the white metal enclosure so that the enclosure cover can be replaced after installation.

4. **Wiring to your PC or A/V equipment.** For the RS232 Link, use the 9-pin cable provided or follow the chart below:

RS232 Link of RS232 RS232/PRG Interface	Typical PC or A/V equipment	Pin on 9-pin cable
1 Common	Com	5
2 Data In	TxD	3
3 Data Out	RxD	2

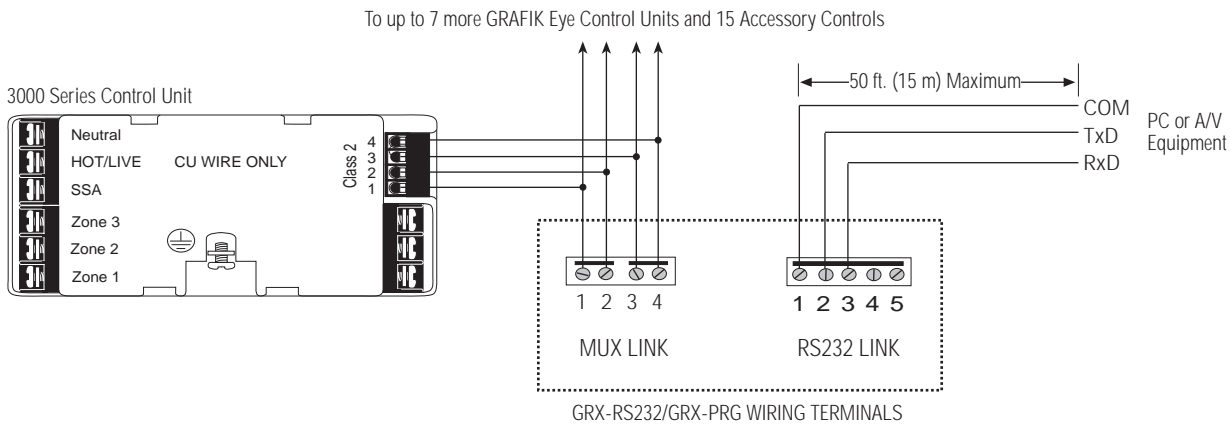
5. **Addressing GRAFIK Eye Control Units.** Control Units and Accessory Controls must be uniquely addressed for use with the GRX-RS232 or GRX-PRG. For addressing, see the GRAFIK Eye Installer's Guide included with the Control Units.

**GRX-RS232:** The GRX-RS232 does not require an address, unless other GRX-RS232 interfaces exist on the GRAFIK Eye link.

**GRX-PRG:** The GRX-PRG is fixed at address 16. There can be no more than 15 additional Accessory Controls.

## Wiring Diagram

**Note:** Wiring will differ on 4000 Series Control Units. See the Installer's Guide for more details (P/N 032-036).



# DIP Switches

The settings of the DIP switches affect the interface control between GRAFIK Eye Control Units and your PC or auxiliary A/V equipment. DIP switch options are described below:

**DIP Switch 1: ZONE LOCK RETAIN**

**DIP Switch 2: SCENE LOCK RETAIN**

**DIP Switch 3: SEQUENCE RETAIN**—In the event of a power outage, the RS232 Interface will retain which GRAFIK Eye Control Units were in ZONE LOCK, SCENE LOCK and SEQUENCE (set using the GRX-RS232/GRX-PRG), respectively. Upon returning power, Control Units that had been in Zone Lock, Scene Lock, or Sequencing (set using the GRX-RS232/GRX-PRG) will stay locked or sequencing if the DIP switches are in the ON position. When these DIP switches are in the OFF position, this information will **not** be restored upon power up. These DIP switches do not affect Zone Lock, Scene Lock, or Sequencing set by a GRX-AV in 4Q mode.

**DIP Switch 4: SEQUENCE TYPE**—Set the scene range that GRAFIK Eye Control Units will sequence, using the SEQUENCE command of the GRX-RS232/GRX-PRG. In the OFF position, GRAFIK Eye Control Units will sequence scenes 1 through 4. In the ON position, they will sequence scenes 5 through 16.

**DIP Switch 5: FIXED ADDRESS (GRX-RS232 only)**—If you want to add a GRX-RS232 Interface to a MUX link that already has a GRX-RS232 or GRX-PRG, the fixed address option must be used by setting DIP Switch 5 ON. DIP Switches 1—4 are then used to address the Interface. The Sequence Type (DIP switch 4) that will run when using the SEQUENCE command of the GRX-RS232/GRX-PRG is determined by the address of the GRX-RS232/GRX-PRG. Even addresses (2, 4, . . .) will sequence scenes 1—4, and odd addresses (1, 3, . . .) will sequence scenes 5—16. Refer to the addressing table below.

Address	1	2	3	4	Address	1	2	3	4
1					9				
2					10				
3					11				
4					12				
5					13				
6					14				
7					15				
8					16*				

\* Reserved for GRX-PRG.

A fixed address GRX-RS232 unit can only do one of the following 4Q functions at any time: Zone Lock (ZL), Scene Lock (SL), and Sequencing (SQ).

**Note:** Use the fixed address option only if there is a GRX-PRG or other GRX-RS232 already on the MUX link.

**DIP Switch 6: RAW FEEDBACK**—In the ON position, the Programming Interface will report when a button has been pushed or released on a GRAFIK Eye Control Unit or low-voltage Accessory Control. This response varies depending on the type of unit, as listed below:

**GRAFIK Eye Control Units** (GRX-3100/4100 and GRX-3500/4500 models)

**Scene Selection Control** (NTGRX-4S/4S-IR and EGRX-4S/4S-IR)

**Architrave Door Jamb Control** (GRX-4S-DW)

**Infrared Ceiling Receiver** (GRX-CIR)

**A/V Interface Control** (GRX-AV)

**Infrared Wireless Remote Controls** (GRX-IT & GRX-8IT)

The first parameter indicates the address of the Accessory Control or Control Unit upon which the button was pushed or released. A capital letter indicates a button was pushed, and a lowercase letter indicates a button was released. The following is a list of how addresses are indicated.

Unit:	Addressed as:	Indicated by:
Control Unit	A1	A or a
	A2	B or b
	A3	C or c
	A4	D or d
	A5	E or e
	A6	F or f
	A7	G or g
	A8	H or h
Accessory Control	1	I or i
	2	J or j
	3	K or k
	4	L or l
	5	M or m
	6	N or n
	7	O or o
	8	P or p
	9	Q or q
	10	R or r
	11	S or s
	12	T or t
	13	U or u
	14	V or v
	15	W or w
	16	X or x

The second parameter indicates the scene which was selected. If the off button is pushed, it is indicated by a zero. A Master Raise is indicated by an 18, and a Master Lower is indicated by a 19.

**EXAMPLE** of response:

D3<CR><LF>

The scene 3 button was pushed on GRAFIK Eye Control Unit addressed as A4.

**Two-Button Control** (NTGRX-2B-SL)

The first parameter indicates the address as above. The second parameter is a 1 to indicate that the Raise or top button has been pushed and is a 0 to indicate that a Lower or bottom button has been pushed.

# DIP Switches

## A/V Interface Control configured as a Special Function Control (GRX-AV configured as 4Q)

Unlike the other controls, the first parameter will be a capital letter if any of the control's four functions, Sequence, Zone Lock, Scene Lock or Fade Override, are active. A lower case letter indicates that no functions are active. The second parameter will be a character that contains encoded information about which functions are active. For details on the format of this response, contact Lutron.

### Master Control (NTGRX-4M)

### Partition Control (NTGRX-4PS)

The status of these Accessory Controls cannot be decoded by the Programming Interface. When buttons are pushed on the Master Control and Partition Control, 1s and 0s may be returned by the RS232 Interface.

**DIP Switch 7: SCENE STATUS**—In the ON position, the Programming Interface will return the current scene of all eight GRAFIK Eye Control Units on the MUX link when a new scene is selected. The response will be a "ss", followed by a string of eight ASCII characters, one for each GRAFIK Eye Control Unit. Each character represents the scene of each GRAFIK Eye Control Unit. The scene will be indicated by its number. Scene 10 will be indicated by an 'A'; scene 11 will be indicated by a 'B', and so on up to scene 16. A '0' will be returned if the GRAFIK Eye Control Unit is off, and an 'M' will be returned if the GRAFIK Eye Control Unit is missing or not responding. An 'R' will be returned if a Master Raise is being sent, and an 'L' will be returned if a Control Unit is sending a Master Lower. Regardless if this switch is in the ON or OFF position, the current scene can be obtained by using the REQUEST SCENE STATUS command. See the GRAFIK Eye RS232 Protocol and Command Set (P/N 040-138) included with the GRX-PRG unit for details.

## EXAMPLE of response:

```
:ssM180R2D2<CR><LF>
```

```
Control Unit A1 is missing  
Control Unit A2 is in scene 1  
Control Unit A3 is in scene 8  
Control Unit A4 is off  
Control Unit A5 is sending a Master Raise  
Control Unit A6 is in scene 2  
Control Unit A7 is in scene 13  
Control Unit A8 is in scene 2
```

**DIP Switch 8: Timeclock ON/OFF**—In the ON position, the internal timeclock of the GRX-PRG can control the operation of the GRAFIK Eye Control Unit(s). Timeclock schedules and the Super Sequence are configured and programmed using Lutron's GRAFIK Eye LIAISON software.

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### WARRANTY

Lutron warrants each new unit to be free from defects in materials and workmanship and to perform under normal use and service. This warranty shall run only for a period of one year from the date of purchase and Lutron's obligations under this warranty are limited to remedying any defect or replacing any defective part and shall be effective only if the defective unit is shipped to Lutron postage prepaid within 12 months after purchase. Damage due to abuse, misuse, inadequate wiring or installation is not covered by this warranty.

In no event shall Lutron or any other seller be liable for any other loss or damage, including consequential or special damages that may arise through the use by a purchaser or others of this device and the purchaser assumes and will hold harmless Lutron in respect of all such loss.

Although every attempt is made to ensure that catalogue information is accurate and up-to-date, please check with Lutron before specifying or purchasing this equipment to confirm availability, exact specifications and suitability for your application.

This product may be covered by one or more of the following U.S. patents: 4,797,599; 4,825,075; 4,893,062; 4,924,157; 5,030,893; 5,191,265; 5,430,356; 5,463,286; 5,530,322; 5,808,417; DES 308,647; DES 310,349; DES 311,170; DES 311,371; DES 311,485; DES 311,678; DES 313,738; DES 335,867; DES 344,264; DES 370,663; DES 378,814 and corresponding foreign patents. U.S. and foreign patents pending.

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P/N 040-156 Rev. A