

Features

GRX-IO

- Integrates a *GRAFIK Eye* lighting control system with equipment that has contact-closure I/O, including:
 - Motion and occupant sensors.
 - Timeclocks and push buttons.
 - Motorized projection screens, skylights, window shades, and movable walls.
 - AV equipment.
 - Security systems.
- May be programmed to control any combination of one to eight *GRAFIK Eye* 3000 or 4000 Series control units.

Inputs/Outputs:

- Provides five inputs and five outputs.
- Provides both normally open (NO) and normally closed (NC) dry contacts.
- Using the inputs, contact closures in other equipment can operate control units to:
 - Select scenes.
 - Run sequences (loop through scenes).
 - Lock control units.
 - Activate panic mode (lights go full on).
 - Adjust scenes to reflect status of movable walls.
 - Turn lights on or off based on room occupancy.
- Using the outputs, scene changes in control units can:
 - Trigger outputs to control other equipment.
 - Provide status feedback to other equipment.

Four Types of Configuration:

1. **4S Scene Selection Control:** Provides for remote control of *GRAFIK Eye* 3000 or 4000 Series control units. Can be used to select any group of four scenes and turn the system and all corresponding lighting off.

Maintain Outputs: Allows the selection of up to 5 contact closures to other manufacturers' A/V equipment.

Momentary Outputs: Allows the selection of projection screens or other equipment requiring momentary output closures.

2. **4Q Special Function Control**

Sequencing: Cycles the preset light levels from scene 1 through scene 4 (or 5 through 16) and back to scene 1 (or 5) looping indefinitely and using the programmed fade times for each scene.

Zone Lockout: Prevents modifications to set light levels on the *GRAFIK Eye* control unit. Only temporary changes can be made.

Scene Lockout: Prevents changing of the selected scene or preset levels on all *GRAFIK Eye* control unit(s) and wallstations.

Panic: Activates scene 16 on assigned *GRAFIK Eye* control unit(s) and places them in Scene Lockout. Toggle of this closure will return controls to their status before Panic was activated.

3. **4PS Partition Control:** Allows independent (partition closed) or parallel (partition open) operation of multiple *GRAFIK Eye* control units.

4. **Occupant Sensor Special Control**

OS1 Occupant Sensor Scene 1/Off: maintained contact so occupant sensor can turn ON assigned *GRAFIK Eye* control unit(s) while still allowing scene changes once room is entered.

Note: Use 4S function if occupant sensor provides a momentary closure.

OS2 Occupant Sensor Off Only: Occupant must turn lights on manually, while still allowing energy-saving benefits.

OMX-IO

- Integrates *GRAFIK* 5000TM, *GRAFIK* 6000[®], *GRAFIK* 7000TM, *LCP128*[®], and *Softswitch128*TM systems with equipment that has contact-closure I/O, including:
 - Motion and occupant sensors.
 - Timeclocks and push buttons.
 - Motorized projection screens, skylights, window shades, and movable walls.
 - AV equipment.
 - Security systems.
- Use the processor panel from one of the systems listed above to set up the OMX-IO interface for different modes, functions, and momentary/maintained inputs and outputs.

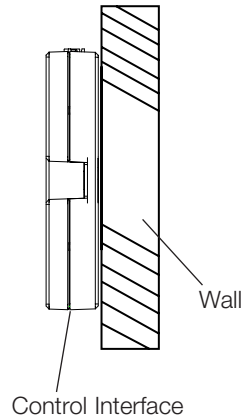
Inputs/Outputs:

- Provides five inputs and five outputs.
- Provides both normally open (NO) and normally closed (NC) contacts.
- Using the inputs, contact closures in other equipment can operate controls to:
 - Select scenes.
 - Turn lights on or off based on room occupancy.
- Using the outputs, scene changes in control units can:
 - Trigger outputs to control other equipment.
 - Provide status feedback to other equipment.

Mounting and Wiring

1. Mount the Control Interface directly on a wall, as shown in the Mounting Diagram, using screws (not included). When mounting, provide sufficient space for connecting cables. The unit can also be placed in the LUT-19AV-1U AV rack using the screws provided with the unit. The LUT-19AV-1U will hold up to four units. If conduit is desired for wiring, the LUT-5x10-ENC can be used to mount one unit. Mount in an accessible location.
2. Strip 3/8 in (10 mm) of insulation from wires. Each Data Link terminal will accept up to two 18 AWG (1.0 mm²) wires.
3. Connect wiring as shown in the Wiring Diagram (next page). Link Status LED blinks once per second when properly connected, and once every seven seconds when data link is installed incorrectly.

Mounting Diagrams

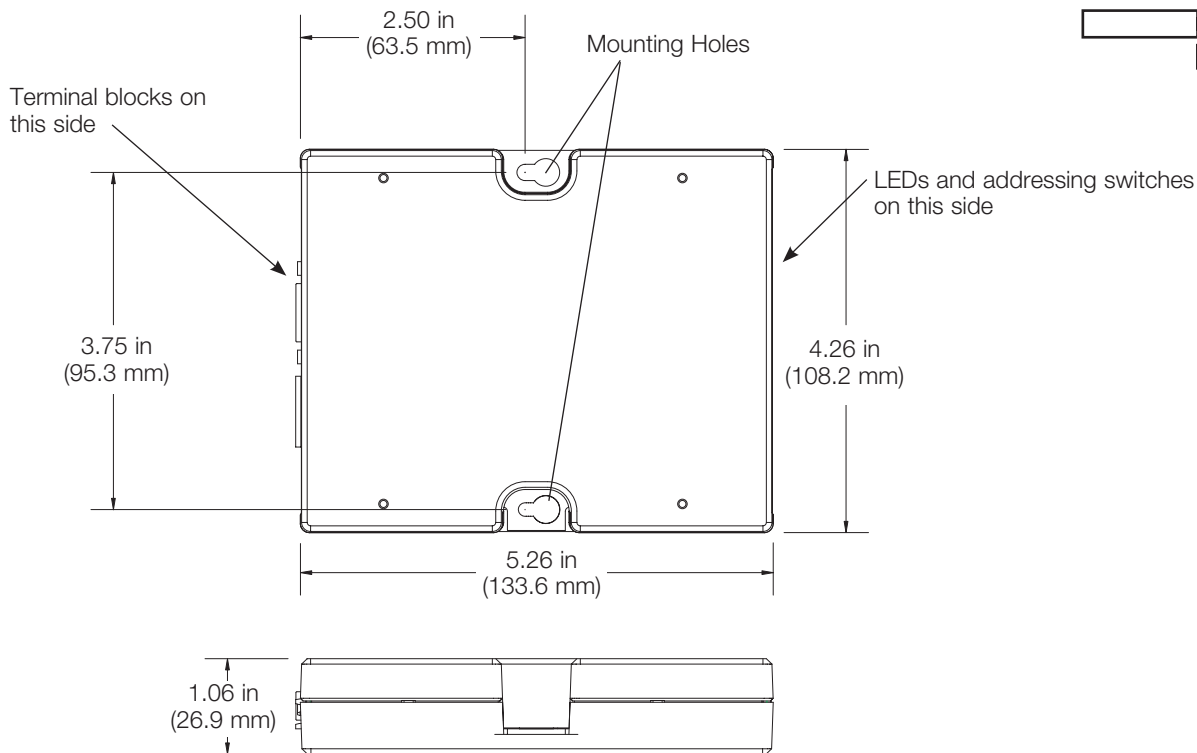


LUT-19AV-1U

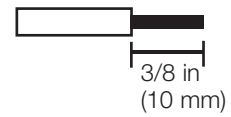


LUT-5x10-ENC

Dimensions



Wire Strip Length



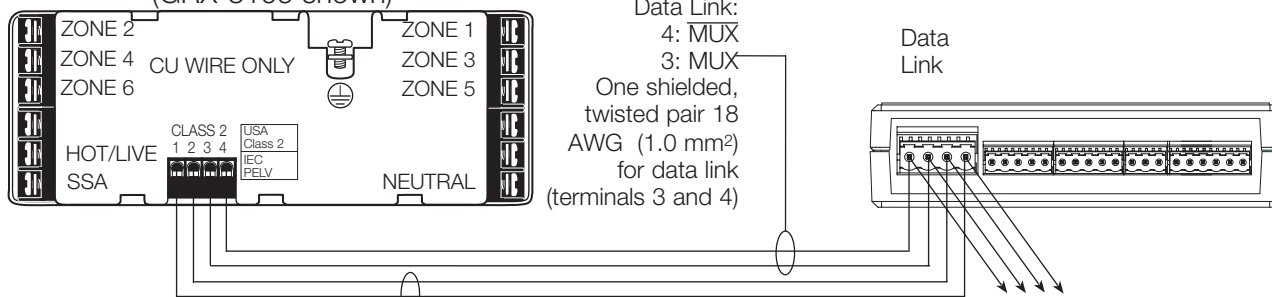
Low-Voltage PELV (Class 2: USA) Wiring

Important Notes

- Install in accordance with all applicable regulations.
- CAUTION: 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 PELV (Class 2: USA) wiring methods. Check with your local electrical inspector for compliance with national and local codes and wiring practices.
- Make daisy-chain connections to the low-voltage PELV (Class 2: USA) Data Link terminals on the end of the Control Interface.
- Do not use T-taps. Run all wires in and out of the terminal block, or use a short pigtail, as shown below.
- Each terminal accepts up to two 18 AWG (1.0 mm²) wires.

GRX-IO Control Interface Wiring: GRX-3000 or GXI-3000 Control Unit

Rear View of *GRAFIK Eye* Control Unit
(GRX-3106 shown)



Use Lutron Cable
GRX-CBL-346S
or equivalent

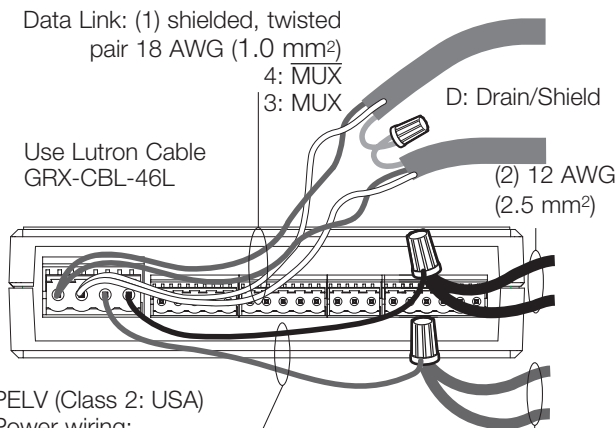
PELV (Class 2: USA) Power wiring:
2: Power
1: Common
Two 18 AWG (1.0 mm²) conductors
for Common (terminal 1) and
12 V_{DC} (terminal 2)

To additional Wallstations/Control Interfaces
(16 maximum; 3 powered from one *GRAFIK Eye*
Control Unit without external 12 V_{DC} power supply)
GRX-IO counts as two devices toward the
maximum of three connected to one *GRAFIK Eye*
3000 control unit

OMX-IO Control Interface Wiring: Control Station Device Link (Data Link connection shown)

or

GRX-IO Control Interface Wiring: GRX-4000 Control Unit



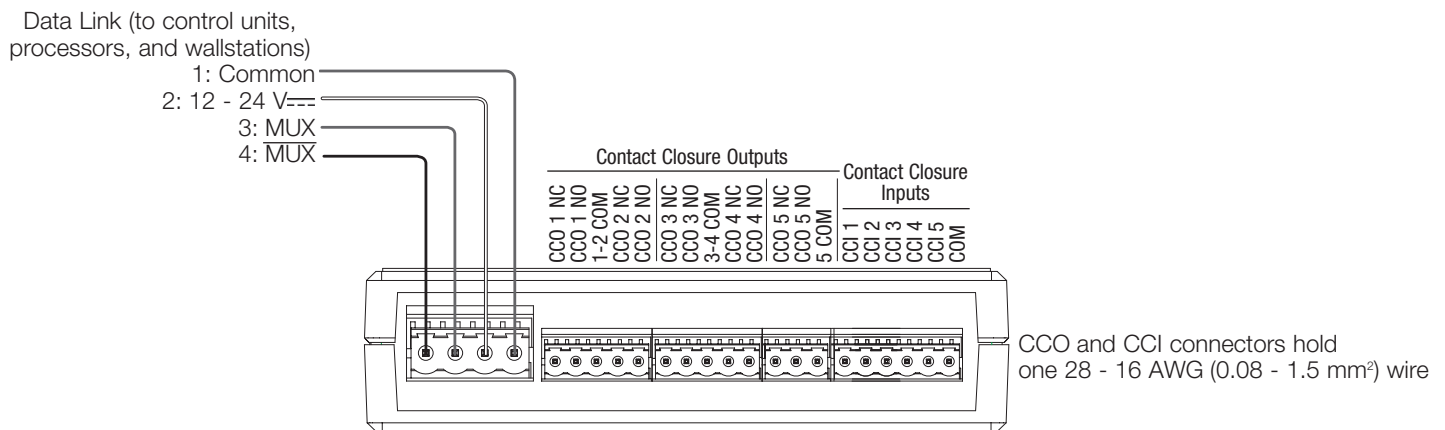
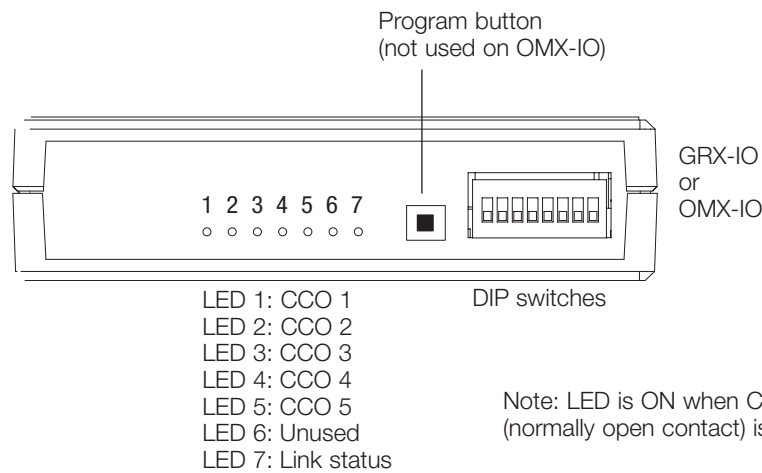
PELV (Class 2: USA)
Power wiring:
1: Common
2: 24 V_{DC} Power
(2) 18 AWG (1.0 mm²) pigtails,
6 in (152 mm) maximum length

(2) 12 AWG
(2.5 mm²)

Note: Do not connect Drain/Shield to Earth/Ground
or Wallstation/Control Interfaces. Connect the bare
drain wires and cut off the outside shield.

Note: 12 AWG (2.5 mm²) conductors for Common
(terminal 1) and 24 V_{DC} Power (terminal 2) will not
fit in terminals; use 18 AWG (1.0 mm²) pigtails
(< 6 in/152 mm).

Low-Voltage PELV (Class 2: USA) Wiring



Contact Closure Ratings

Five Input Terminals

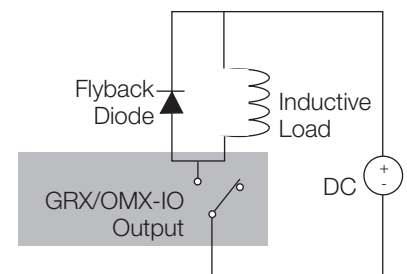
- Accept maintained inputs and momentary inputs with 40 msec minimum pulse times.
- Off-state leakage current must be less than 100 uA.
- Open circuit voltage: 24 V_{DC} maximum.
- Inputs must be dry contact closure, solid state, open collector, or active-low (NPN)/ active high (PNP) output.
 - Open collector NPN or active-low on-state voltage must be less than 2 V_{DC} and sink 3.0 mA.
 - Open collector PNP or active-high on-state voltage must be greater than 12 V_{DC} and source 3.0 mA.

Five Output Terminals

- Provide maintained or momentary (1-second) outputs.
- Provide both normally open (NO) and normally closed (NC) dry contacts.
- The GRX-IO and OMX-IO are not rated to control unclamped, inductive loads. Inductive loads include, but are not limited to, relays, solenoids, and motors. To control these types of equipment, a flyback diode must be used (DC voltages only). See diagram.
- Output relays are non-latching (if relays are closed and power is lost, relays will open).

Output Ratings

Supply Voltage	Resistive Load (max. current)
0 - 24 V _{DC}	1.0 A
0 - 24 V _{AC}	0.5 A



GRX-IO Operating Modes and DIP Switch Settings

- Operating mode can be selected by setting DIP switches 5 through 8. Inputs and outputs may be maintained or momentary as indicated.
- May be programmed to control any combination of one to eight *GRAFIK Eye* 3000 or 4000 Series control units.
- For scene selection and special function modes, one control unit or a group of control units may be assigned to be operated by the GRX-IO.
- With partitioning and occupant sensor modes, a different control unit or group of control units may be assigned for each I/O closure.

Mode	DIP Switches				Contact closures invoke:					Inputs:	Outputs:			
	5	6	7	8	Input 1	Input 2	Input 3	Input 4	Input 5					
Scene Selection					Scene 1	Scene 2	Scene 3	Scene 4	Off	Maintained or momentary	Maintained			
					Scene 5	Scene 6	Scene 7	Scene 8	Off					
					Scene 9	Scene 10	Scene 11	Scene 12	Off					
					Scene 13	Scene 14	Scene 15	Scene 16	Off					
					Scene 1	Scene 2	Scene 3	Scene 4	Off	Maintained or momentary	Momentary ¹			
					Scene 5	Scene 6	Scene 7	Scene 8	Off					
					Scene 9	Scene 10	Scene 11	Scene 12	Off					
					Scene 13	Scene 14	Scene 15	Scene 16	Off					
Special Functions					Sequence scenes 1-4	Zone lockout allows temporary adjustments. No changes to preset scenes.	Scene lockout disables scene and zone buttons.	"Panic" mode turns lights full on (to scene 16), locks Control Units.	Not used	Maintained only	Maintained			
					Sequence scenes 5-16					Momentary only	Maintained			
					Sequence scenes 1-4									
					Sequence scenes 5-16									
Partitioning ²					Wall 1	Wall 2	Wall 3	Wall 4	Wall 5	Momentary only	Maintained			
					Wall 1	Wall 2	Wall 3	Wall 4	Wall 5	Maintained only	Maintained			
Occupant Sensor ³					Sensor input toggles Control Units between scene 1 and off.					Maintained only ⁴	Maintained			
					Sensor input turns Control Units off. Occupant must turn lights on.					Maintained only ⁴	Maintained			

Switch up (On)

Switch down (Off)

¹ Scenes trigger the position of motorized window shades or projection screens.

² Movable walls toggle control units between "in combination" and "independent" modes of operation. Each input is set up to operate the control units associated with a movable wall (or walls).

- When a motorized wall opens, the wall's switch contact closes. The control units now work "in combination." Scene changes at one control unit occur on all the associated control units.
- When a wall closes, the switch contact opens. The control units return to independent operation.

³ If a *GRAFIK Eye* is in more than one occupant sensor group, it turns On when the first sensor activates, and Off with the last sensor to go off.

⁴ If an occupant sensor input provides momentary closure, use scene selection mode.

GRX-IO Addressing

Up to 16 controls can be configured in a system. Each control must be assigned a unique address. Set DIP switches 1 through 4 of the GRX-IO to one of the following for the specified address.

Address	DIP Switches			
↓	1	2	3	4
1	☐↑	☐↑	☐↑	☐↑
2	☐↑	☐↑	☐↑	☐↓
3	☐↑	☐↑	☐↓	☐↑
4	☐↑	☐↑	☐↓	☐↓
5	☐↑	☐↓	☐↑	☐↑
6	☐↑	☐↓	☐↑	☐↓
7	☐↑	☐↓	☐↓	☐↑
8	☐↑	☐↓	☐↓	☐↓

Address	DIP Switches			
↓	1	2	3	4
9	☐↓	☐↑	☐↑	☐↑
10	☐↓	☐↑	☐↑	☐↓
11	☐↓	☐↑	☐↓	☐↑
12	☐↓	☐↑	☐↓	☐↓
13	☐↓	☐↓	☐↑	☐↑
14	☐↓	☐↓	☐↑	☐↓
15	☐↓	☐↓	☐↓	☐↑
16	☐↓	☐↓	☐↓	☐↓

OMX-IO Operating Modes and DIP Switch Settings

Please refer to the individual documentation for LCP128™, Softswitch128®, and GRAFIK 7000™ for detailed information for each of those systems.

Output Closure Type DIP Switch Setting (switch 8)

Momentary (pulsed) ☐↓

Note: overrides LCP panel setup

Maintained (held) ☐↑

OMX-IO Addressing

Address	DIP Switches				
↓	1	2	3	4	5
1	☐↑	☐↑	☐↑	☐↑	☐↑
2	☐↓	☐↑	☐↑	☐↑	☐↑
3	☐↑	☐↓	☐↑	☐↑	☐↑
4	☐↓	☐↓	☐↑	☐↑	☐↑
5	☐↑	☐↑	☐↓	☐↑	☐↑
6	☐↓	☐↑	☐↓	☐↑	☐↑
7	☐↑	☐↓	☐↓	☐↑	☐↑
8	☐↓	☐↓	☐↓	☐↑	☐↑
9	☐↑	☐↑	☐↑	☐↓	☐↑
10	☐↓	☐↑	☐↑	☐↓	☐↑

Address	DIP Switches				
↓	1	2	3	4	5
11	☐↑	☐↓	☐↑	☐↓	☐↑
12	☐↑	☐↑	☐↓	☐↓	☐↑
13	☐↑	☐↑	☐↓	☐↓	☐↑
14	☐↑	☐↓	☐↓	☐↓	☐↑
15	☐↑	☐↓	☐↓	☐↓	☐↑
16	☐↑	☐↓	☐↓	☐↓	☐↑
17	☐↑	☐↑	☐↑	☐↑	☐↓
18	☐↑	☐↓	☐↑	☐↓	☐↓
19	☐↑	☐↓	☐↑	☐↑	☐↓
20	☐↑	☐↑	☐↓	☐↑	☐↓

Address	DIP Switches				
↓	1	2	3	4	5
21	☐↑	☐↑	☐↓	☐↑	☐↓
22	☐↓	☐↑	☐↓	☐↑	☐↓
23	☐↑	☐↓	☐↓	☐↑	☐↓
24	☐↓	☐↓	☐↓	☐↑	☐↓
25	☐↑	☐↑	☐↑	☐↓	☐↓
26	☐↓	☐↑	☐↑	☐↓	☐↓
27	☐↑	☐↓	☐↑	☐↓	☐↓
28	☐↓	☐↓	☐↑	☐↓	☐↓
29	☐↑	☐↑	☐↓	☐↓	☐↓
30	☐↓	☐↑	☐↓	☐↓	☐↓
31	☐↑	☐↓	☐↓	☐↓	☐↓
32	☐↓	☐↓	☐↓	☐↓	☐↓

☐↑ Switch up (On)

☐↓ Switch down (Off)

GRX-IO Programming

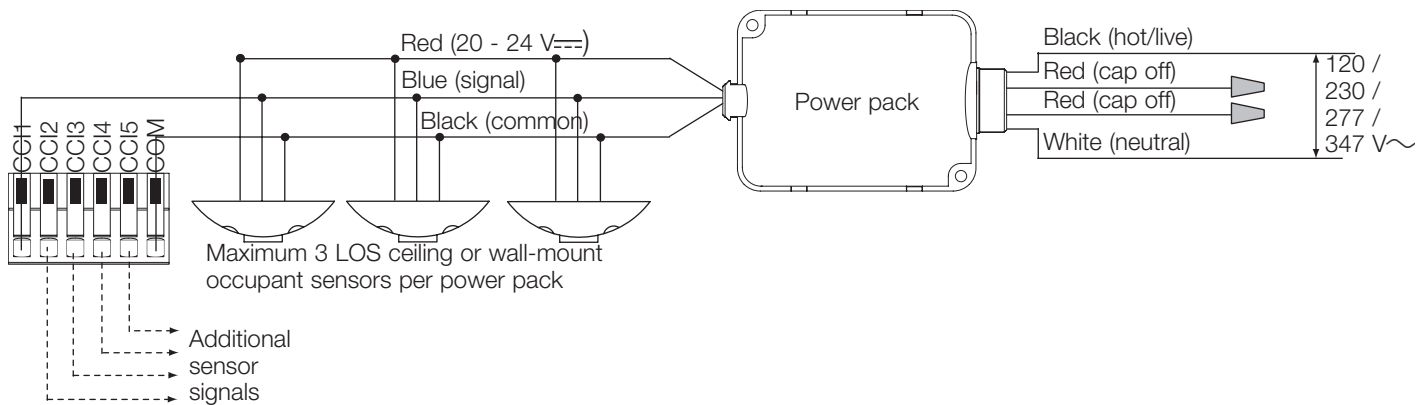
Note: All *GRAFIK Eye* wallstations must be assigned a unique address.

1. **Put the GRX-IO in “Talk” mode.** Press and hold the program button for 3 to 5 seconds until:
 - the first CCO Output LED blinks, **OR**
 - the first five CCO Output LEDs begin to cycle.
2. **Identify the *GRAFIK Eye* Control Unit(s) that will “Listen” to this GRX-IO.** Press and hold the Control Unit’s Scene 1 button for 3 seconds until the LEDs flash in unison, showing that the Control Unit is “listening.” Repeat for each Control Unit that should listen to this GRX-IO.
- 3a. **4S or 4Q Functions: Take the GRX-IO out of “Talk” mode.** Press and hold the program button for 3 to 5 seconds until the CCO Output LEDs stop cycling or blinking.

- 3b. **4PS or OS functions: Each input must be programmed separately.**
 - Press the program button to cycle through each input. These represent a partition switch, occupant sensor, etc. The corresponding CCO Output LED will blink.
 - Program *GRAFIK Eye* Control Unit(s) to communicate with the GRX-IO by using the procedure in step 2.
 - When the fifth input is programmed, pressing the program button on the GRX-IO will take the GRX-IO out of “Talk” mode.

Note: To make a *GRAFIK Eye* Control Unit stop “listening” to a GRX-IO, put the GRX-IO in “Talk” mode, then press and hold the OFF button on the *GRAFIK Eye* Control Unit until the LEDs stop blinking. Take the GRX-IO out of “Talk” mode.

Connecting LOS Occupant Sensors to a GRX-IO or OMX-IO Control Interface



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Lutron Electronics Co., Inc. One Year Limited Warranty

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If the unit is commissioned by Lutron or a Lutron approved third party as part of a Lutron commissioned lighting control system, the term of this warranty will be extended, and any credits against the cost of replacement parts will be prorated, in accordance with the warranty issued with the commissioned system, except that the term of the unit's warranty term will be measured from the date of its commissioning.

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2. On-site labor costs to diagnose issues with, and to remove, repair, replace, adjust, reinstall and/or reprogram the unit or any of its components.
3. Equipment and parts external to the unit, including those sold or supplied by Lutron (which may be covered by a separate warranty).
4. The cost of repairing or replacing other property that is damaged when the unit does not work properly, even if the damage was caused by the unit.

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