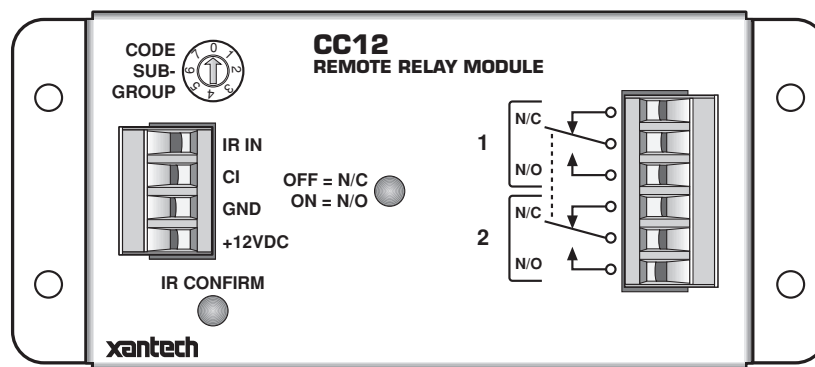


# INSTALLATION INSTRUCTIONS

## CC12 REMOTE RELAY MODULE

The CC12, **Fig. 1**, is an IR Remote Controlled Double Pole Double Throw Relay Module. It provides dry contact closures to satisfy a variety of uses, such as activation of screen drops, projector lifts, etc. The switching is accomplished by way of infrared commands originating from a Xantech RC68+ Programmer (or RC68 Programmer). It can also be switched by a DC voltage applied between the **CI** (control input) and **GND** terminals. The RC68+ commands are "taught" to learning devices and passed to the **IR IN**, and **GND** input terminals of the CC12 signal input terminals via Xantech IR Receivers, Keypads and Connecting Blocks.



*Fig. 1 The CC12*

### FEATURES AND SPECIFICATIONS

- One 6-terminal plug-in connector to make connection to the internal DPDT relay.
- 5 Amp/30V DC relay contact rating.
- 4-terminal IR input (**S** = IR Signal, **CI** = Control Input, **G** = Gnd, **V** = +12V) for connection of Xantech IR Receivers, Smart Pads, Connecting Blocks and other devices.
- All plug-in connectors accept wire sizes from 24 to 12 gauge.
- **IR CONFIRM** LED goes on **only** when an RC68+ (or RC68) IR command signal activates unit.
- LED turns **ON** when **N/O** (normally open) contacts are closed and goes **OFF** when **N/C** (normally closed) contacts are closed.
- Four RC68+ IR commands permit **Pair**, **Toggle**, and **Momentary** operation of the switching relay.
- IR activated ON condition (N/O contacts closed) goes OFF if power is interrupted.
- +3V to +30V DC 1 mA applied to **CI** terminal will switch unit, instead of IR, if desired.
- Factory preset Group Code number: **50**.
- **CODE SUB-GROUP** switch allows a choice of 8 different groups of the four RC68++ commands that operate the CC12. This prevents mutual interaction in common IR systems when using more than one CC12. Also, internal E<sup>2</sup> PROM can be set to different code groups, allowing up to 240 different IR code combinations if the system uses more than eight CC12's or in combination with SR21's.
- Power: +12V DC @ 50 mA. Use the 781RG Power Supply for each CC12. If IR receivers or keypads are used on the same 12V line, use the 782-00 Power Supply.
- Flanges, plus supplied screws, permits easy mounting to flat surfaces.
- Dimensions: 5-1/4" x 2-3/8" x 1-7/8".

## RC68+ PROGRAMMER / REMOTE CONTROL

The RC68+ Programmer (available separately) contains all the commands necessary to operate the CC12.

- You will need it to program universal learning devices such as the Xantech URC-1 learning remote, the Xantech Smart Pads, the 590 Programmable Controller, the 710 Fone Link, etc., with commands that operate the CC12.
- NOTE:** The RC68+ codes operate several other Xantech models as well, such as the RS41AV, RP41AV, ZPR68, etc. Therefore, **only the button descriptions that apply to the operation of the CC12 (OVERLAY 'B') are listed below.** All others should be ignored.

**CAUTION:** While the RC68+ will operate as a separate remote control, it is highly recommended it not be given to the final user for the following reasons:

- Since it includes settable code groups, the user may inadvertently alter the installer configurations.
- Also, since the user will require IR commands from other brands of equipment to control the total system, in addition to those of the CC12, all commands should be consolidated into one learning device, for ease of use.

### APPLICABLE RC68+ BUTTON DESCRIPTIONS

- Pair OFF Command.** This button activates the IR command that turns the internal relay of the CC12 to the OFF position (the **N/C** selection).
- Pair ON Command.** This button activates the IR command that turns the internal relay of the CC12 to the ON position (the **N/O** selection).
- TGL (toggle) Command.** The first press of this button turns the relay ON (the **N/O** selection) - the second press turns it OFF (the **N/C** selection).
- MMT (momentary) Command.** Pressing this button causes the CC12 relay to go ON (the **N/O** selection) but stays ON only as long as the button is held down. When released, the relay returns to the OFF position (the **N/C** selection).
- IR Emitter Lens.**

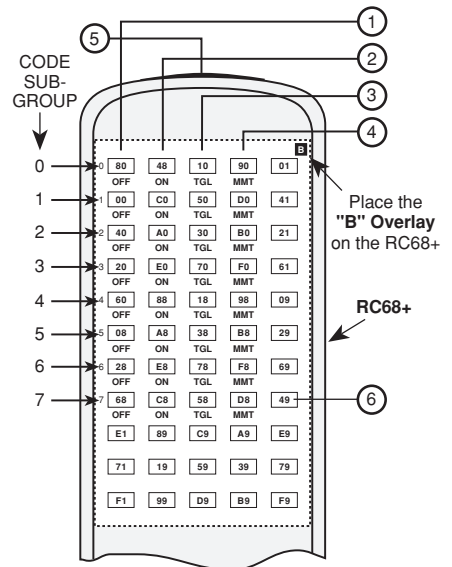


Fig. 2 The RC68 Programmer

### CODE SUB-GROUP

The RC68+ has 11 rows of 5 buttons each. Each row, identified by the numbers 0 through 7 (see Fig. 2), will execute the same set of 4 commands listed above, when selected by the **CODE SUB-GROUP** switch on the CC12. This is useful to prevent mutual interaction in common IR systems when using more than one CC12, or if SR21's are used with CC12's.

**To change the CODE SUB-GROUP,** simply rotate the **CODE SUB-GROUP** switch on the CC12 to the number that corresponds to the desired row on the RC68+. **Remove and reapply power** (after 20 seconds), then use the chosen row to execute the commands for that particular CC12.

**NOTE:** No changes are needed on the RC68+!

- Code Group Numbers.** The CC12 is also capable of being set to different basic code groups as well as the sub-groups.

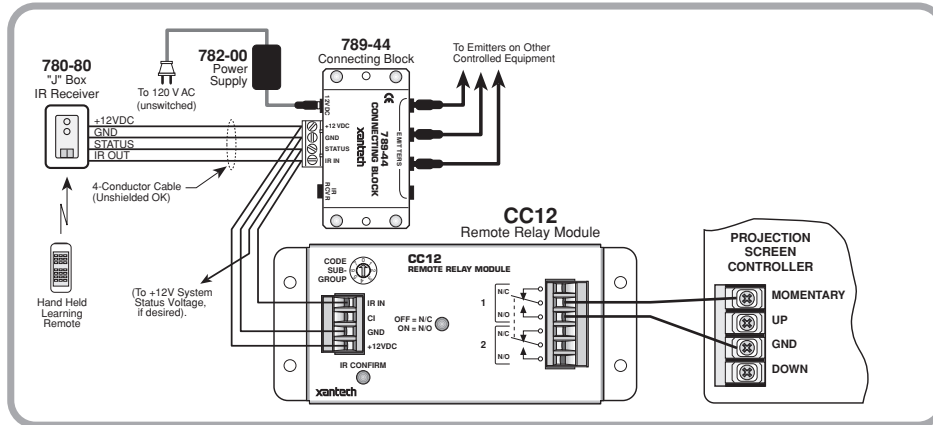
**NOTE:** *When shipped from the factory, the CC12 is set to code group number 50. Be sure to set the RC68+ to the same number!*

It may be necessary to change the CC12 to a different code group if it is used in a common IR bus controlled system with many CC12'S, SR21's, etc., to avoid mutual interaction.

**Refer to the RC68+ instructions for code group setting procedures.**

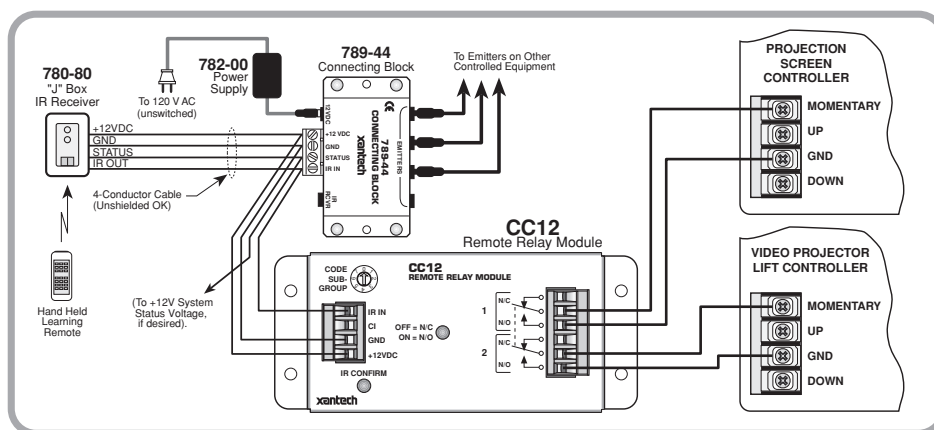
## INSTALLATION

The CC12 can be used in any application that requires dry switch closures activated by IR commands or by a DC control voltage; up to the capacity of the DPDT 5A/30V DC relay. Some of the more likely applications would be to activate video projector lifts, screen drops, drape pulls, etc., in home automation systems. **Fig. 3** is a simple example of a screen drop application.



**Fig. 3** Using a CC12 to Activate a Projector Screen Drop

- **Fig. 3** assumes that the projector screen controller can be configured to operate with a momentary switch closure action. That is, a momentary closure and release at its control terminals will cause the screen to drop to its fully extended position. A second momentary closure will cause it to retract to its fully withdrawn position.
- You would then program one button on the Handheld Learning Remote with the MOMENTARY(MMT) command from the RC68+ (or RC68) Programmer. Refer to **Fig. 2**.
- A 780-80 "J" box IR Receiver is shown for IR control of the system. Any of the other Xantech IR Receivers or keypads could also be used, depending on your system and aesthetic requirements. The STATUS LED indicator in the 780-80 can be driven by a +12V System Status (ON/OFF) voltage, such as from an adapter plugged into the Switched AC outlet on the system A/V receiver.
- The 782-00 powers the IR receiver as well as the CC12 through the 789-44 Connecting Block.
- **Fig. 4** illustrates how both a screen and a projector lift can be operated at the same time.
- Since the CC12 incorporates a DPDT relay, we can utilize the other half of the relay to perform dual operations, such as this, provided each operation can be carried out simultaneously.

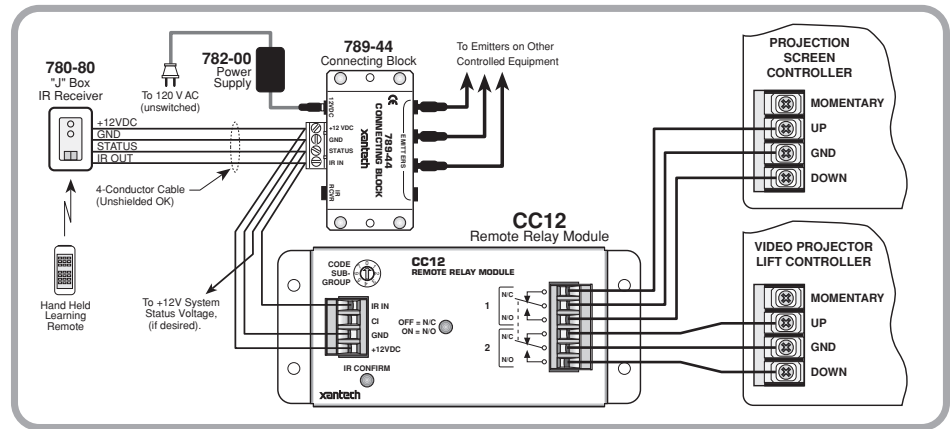


**Fig. 4** Simultaneous Operation of a Screen and Projector Lift Using a CC12

- Note that, as in **Fig. 3**, the N/O (normally open) contacts are connected to the screen and projector lift's **MOMENTARY** terminals. This allows the momentary action to occur.
- As a practical matter, it will be necessary to see that the projector and the screen positions are both UP prior to the issuance of the first command. This will ensure that their actions will be synchronized so that they will both travel in the correct direction when activated.

To overcome the possibility of incorrect synchronization, a method utilizing separate UP/DOWN **paired** commands is illustrated in **Fig. 5**.

- **Fig. 5** assumes that the screen, projector lift, motorized drapes, etc., have inputs that will execute the desired action with constant ON or **maintained** switch closures.
- The N/C (normally closed) terminals, in this case, are connected to the UP terminals on each of the controllers, thus placing a **maintained** closure on them for the UP position.
- Similarly, the N/O (normally open) terminals are connected to the DOWN terminals on each of the controllers. A **maintained** closure on them, when activated, will execute the DOWN position.



**Fig. 5** Connections for Execution of Paired Commands

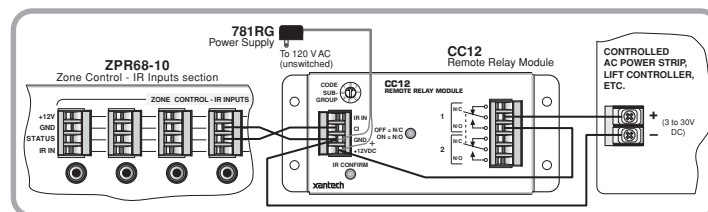
- For this type of operation, you would program one button on the Handheld Learning Remote with the **Pair OFF** command (UP) from the RC68+ Programmer, and a 2nd button with the **Pair ON** command (DOWN). See **Fig. 2**.

In this way, positive UP/DOWN commands can be issued without any possibility of confusion.

### Using the Voltage Controlled Input (CI) on the CC12

The CC12 Relay can be operated with a DC control voltage at the CI terminal, instead of IR, if desired. This allows the switching of high current systems (up to 5 Amps) with a low current DC control signal.

- In **Fig. 6**, the STATUS (or CO output) of a ZPR68 (+12V) drives the CI (control input) of a CC12 when the zone is turned ON & OFF. (The common CO of the ZPR68 could also be used).
- A 781RG powers the CC12 as well as supplying the needed +12V to activate the controlled device. If more than 200 mA is required to operate the controlled device, then a higher current power supply must be used, such as the 782-00 (12V, 1A).



**Fig. 6**