

# INSTALLATION INSTRUCTIONS

## AC2 CONTROLLED AC OUTLET

The AC2 is a controlled AC outlet device, capable of switching up to 15 Amperes of continuous current to a component or power strip. It can be switched ON and OFF by any one of three control sources; low voltage AC or DC, NTSC Video and IR code. It can be used, therefore, in many applications where it is desired to have an AC outlet turned on and off in controlled or automated systems.

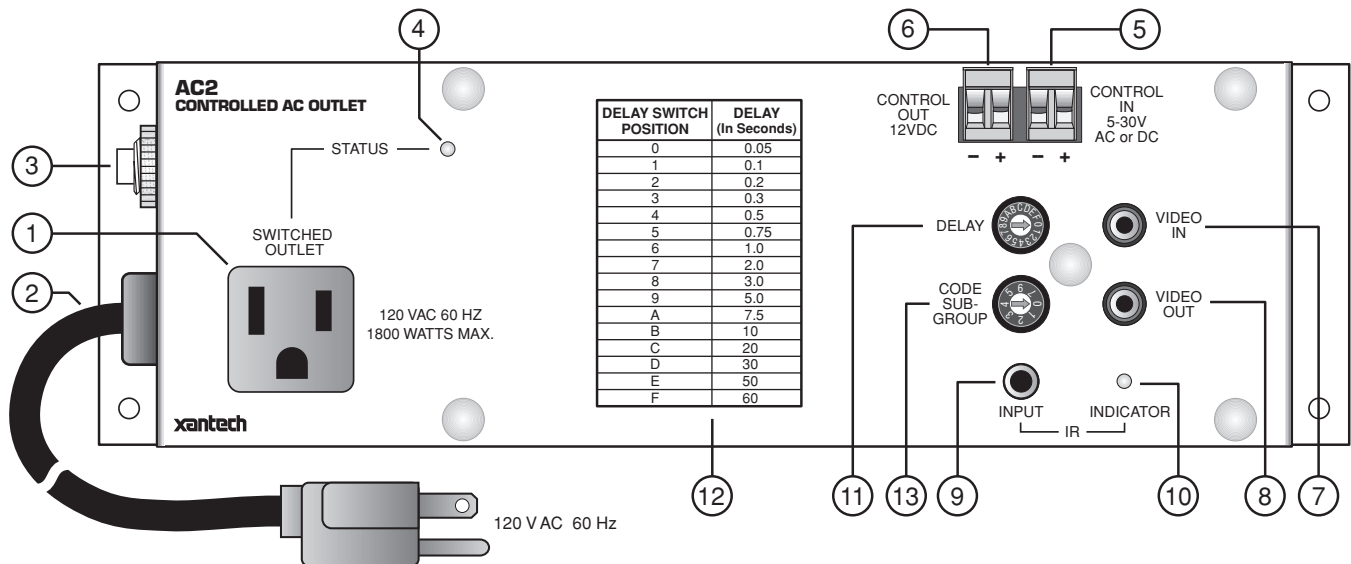


Fig. 1 The AC2

### FEATURES AND SPECIFICATIONS

- SWITCHED OUTLET:** 15 Amps continuous, 30 Amps peak inrush, at 120 VAC, 60 Hz.  
**Standby AC Line Current:** < 25 mA (< 3.0 Watts).
- AC Power Cord:** 120 VAC 16 gauge 5 ft., 3-conductor.
- AC Circuit Breaker:** Opens if AC current exceeds 15 Amps. Manual Push-to-Reset button.
- STATUS LED.** Lights when the AC Outlet is switched ON.
- CONTROL IN AC or DC:** Plug-in 2-terminal connector. 5 Volts (@ 7 mA) to 30 Volts (@ 47 mA), AC or DC, at this input switches the AC Outlet ON, lights the STATUS LED and causes a +12V high at the CONTROL OUT connector. Works with components that provide a continuous voltage output to represent a power ON or other condition.  
**NOTE:** DC voltages must be connected with polarity as shown. AC doesn't matter.  
**CONTROL IN Turn-OFF Voltage:** <1.4 Volts.
- CONTROL OUT:** Plug-in 2-terminal connector. Delivers a constant +12 VDC output (9V @ 30 mA) when the AC Outlet is switched ON by a control voltage, video sync or IR code. This +12 VDC can be used to drive other voltage controlled devices, such as an AC1 or a 2nd AC2.
- VIDEO IN.** RCA type jack. Circuit senses NTSC sync at baseband video. Hi-Z input provides loss-less loop-thru to VIDEO OUT jack. Circuit is triggered when the presence of NTSC sync represents a power ON condition.

8. **VIDEO OUT.** RCA type jack. Allows direct video loop-thru to a monitor, etc. Use if a 2nd video output jack is not available on the Video source.
9. **IR INPUT:** 3.5mm mono mini jack accepts standard IR signals from the emitter output jacks of Xantech Connecting Blocks, Controllers, etc. The AC2 operates with RC68+ IR commands set to code group number **28**.
10. **IR INDICATOR:** Flashes when any IR signal is present.
11. **DELAY Switch:** Provides 16 settings of delay time between the arrival of the CONTROL IN OR VIDEO IN signal and the ON condition of the SWITCHED OUTLET. The delay times range from 0.05 second to 60 seconds.
12. See **Figs. 1 & 4** for a chart of the available DELAY times vs DELAY SWITCH POSITION. **NOTE: Delay action does not apply to the IR INPUT signal.**
13. **CODE SUB-GROUP Switch.** Allows a choice of 8 different groups of the four RC68+ (or RC68) commands that operate the AC2. Also, internal E<sup>2</sup> PROM can be set to different code groups, allowing up to 240 different IR code combinations. This prevents mutual interaction in common IR systems when using more than one AC2 in a system.
  - **Mounting:** Flanges, plus supplied screws, permit easy mounting to flat surfaces.
  - **Dimensions:** 10-1/2" L x 3-1/4" W x 2-1/2" H (267mm x 83mm x 64mm)

## RC68+ PROGRAMMER

The RC68+ (or RC68) Programmer (available separately) contains the commands necessary for IR operation of the AC2.

- 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 AC2.
- **NOTE:** The RC68+ codes operate several other Xantech models as well, such as the RS41AV, CC12, ZPR68, etc. Therefore, **only the button descriptions that apply to the operation of the AC2 (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 setable 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 AC2, all commands should be consolidated into one learning device, for ease of use.

### APPLICABLE RC68+ BUTTONS

1. **Pair OFF Command.** This button activates the IR command that turns the SWITCHED OUTLET **OFF**.
2. **Pair ON Command.** This button activates the IR command that turns the SWITCHED OUTLET **ON**.
3. **TGL (toggle) Command.** The first press of this button turns the SWITCHED OUTLET **ON** -- the second press turns it **OFF**.
4. **MMT (momentary) Command.** Pressing this button turns the SWITCHED OUTLET **ON** but stays ON only as long as the button is held down. When released, the SWITCHED OUTLET turns **OFF**.
5. **IR Emitter Lens.**

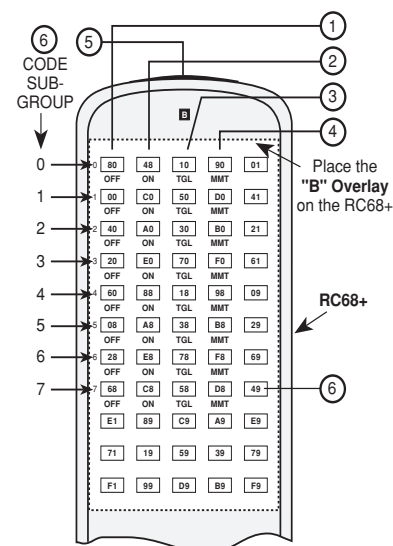


Fig. 2 The RC68+ Programmer

## 6. CODE SUB-GROUP

Four buttons on eight rows of the RC68+, 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 AC2. This is useful to prevent mutual interaction in common IR systems when using more than one AC2.

To change the **CODE SUB-GROUP**, simply rotate the **CODE SUB-GROUP switch** on the AC2 to the number that corresponds to the desired row on the RC68+. **Remove power** from the AC2 for 20 to 30 seconds.

Re-apply power and use the chosen row to execute the commands for that particular AC2.

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

7. **Code Group Numbers.** The AC2 is also capable of being set to different basic code groups as well as the sub-groups.

**NOTE:** *When shipped from the factory, the AC2 is set to code group number 28. Be sure to set the RC68+ to the same number!*

It would only be necessary to change the AC2 to a different code group if the common IR bus system included more than eight AC2's. The code group change would then prevent mutual interaction.

Refer to the RC68 instructions for code group setting procedures.

## DELAY SWITCH

The AC2 allows you to delay the turn ON of the SWITCHED OUTLET over a range of 0.05 second to 60 seconds, by use of the DELAY switch (**Fig. 3**).

The Time Delay Chart, **Fig. 4**, lists the available DELAY times for each position of the DELAY SWITCH. This allows you, for instance, (with the use of more than one AC2) to space apart the turn ON times of 2 or more high powered devices (such as large power amplifiers). This prevents high simultaneous inrush currents from overloading AC power circuit breakers, etc.

**NOTE:** The DELAY is the time between the start of the CONTROL IN voltage (AC or DC) or VIDEO IN sync and-

- the ON state of the SWITCHED OUTLET.
- the presence of +12 VDC at CONTROL OUT.

**IMPORTANT:** *Delay action does not apply*

- to the IR INPUT control signals.
- to the turn OFF condition.

**Fig. 3**  
Delay Switch



DELAY SWITCH POSITION	DELAY (In Seconds)
0	0.05
1	0.1
2	0.2
3	0.3
4	0.5
5	0.75
6	1.0
7	2.0
8	3.0
9	5.0
A	7.5
B	10
C	20
D	30
E	50
F	60

**Fig. 4** Time Delay Chart

## INSTALLATION

Because of the many ways in which it can be controlled, the AC2 offers great flexibility in providing power ON/OFF switching of "Power Line Switchable" components for AC power management in A/V systems.

"Power Line Switchable" components are those that have manual power switches that can be left "ON" or those that "remember" their "ON" condition when their power cords are unplugged.

### Using the CONTROL IN terminals and Timed DELAY

**Fig. 5** illustrates how the AC2 can be used to provide a delayed turn-on for a second power amplifier in an audio or A/V system.

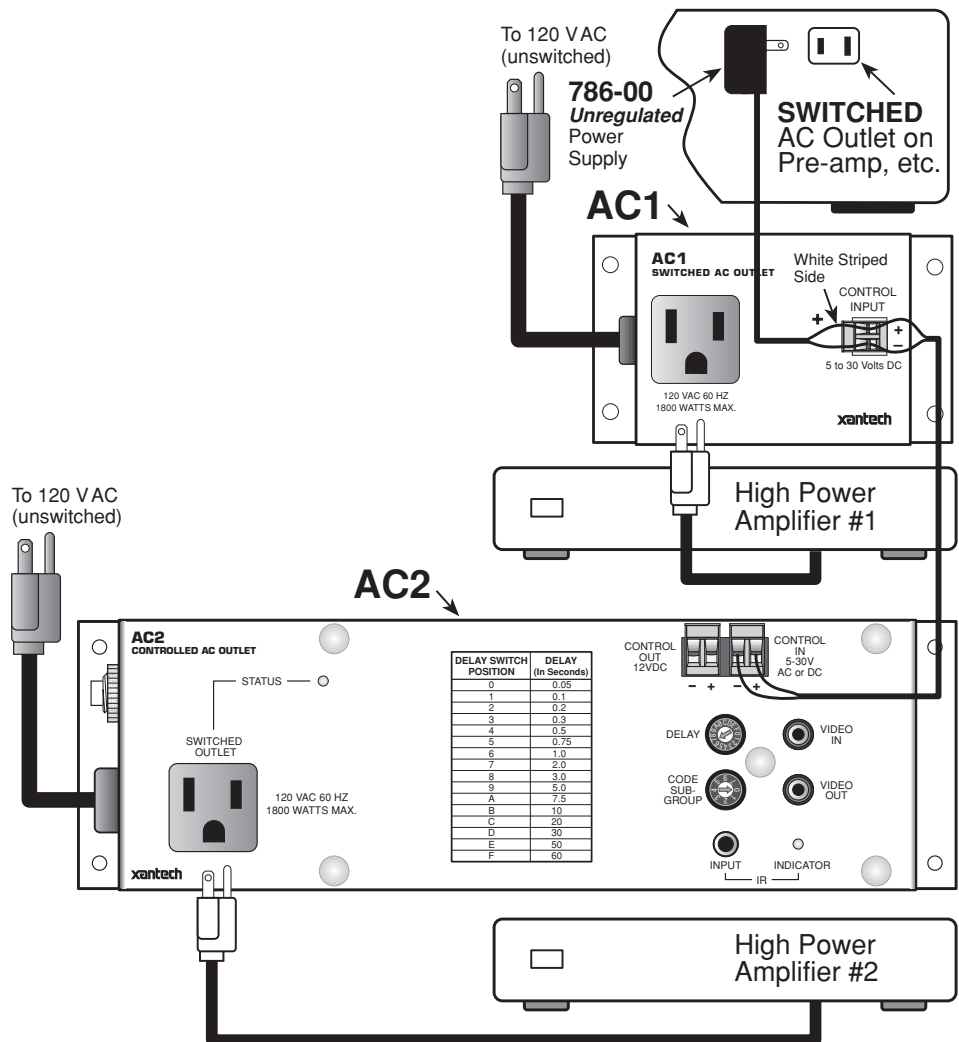
- This example makes use of the switched AC outlet on a preamp or A/V receiver.
- An **unregulated** DC adapter, 5 to 30 Volts output (in this case a Xantech 781C-00), is plugged into the switched outlet of the preamp. The adapter output is connected to **both** the input of an AC1 and an AC2 as shown.
- One AC1 is used, since the power to the first amplifier can be allowed to come on immediately. It does not need to be delayed.
- The DELAY switch of the AC2 is set for 2.0 seconds of delay (the #7 position).
- If more than two amplifiers are needed, simply add additional AC2's as needed. Additional AC2's, however, should have their CONTROL IN terminals connected to the previous AC2's CONTROL OUT terminals. This permits each delay to be set to the same value, if desired.

It is recommended that delays of at least 2 seconds be used for this type of application. This will insure that each turn-on current surge is cleared before the next one arrives.

### Using the VIDEO INPUT

**Fig. 6** is an example of the use of the VIDEO Input jack on the AC2.

- In this case, the Video Output of a TV monitor is used to activate the AC2 to turn on an external power amplifier for high quality audio.



**Fig. 5** Using the CONTROL IN terminals and Timed Delay

- It assumes that the Video Sync output of the TV monitor turns on and off with the TV's power command. Delay action is normally not needed in a simple system like this, but can be used if deemed necessary.
- The VIDEO OUT jack can be used to feed video to another TV monitor and/or to a VCR, etc. as shown.
- Many other AC switching configurations are possible using Video sensing.

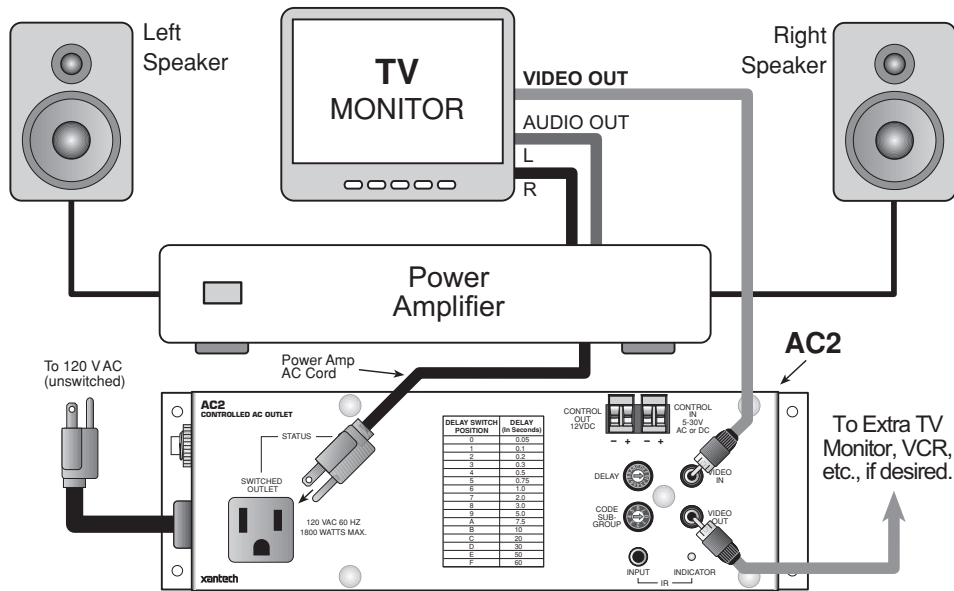


Fig. 6 Using the VIDEO IN jack

## Using the IR INPUT

Fig. 7 illustrates how the AC2 can be controlled from within an IR controlled system.

- In this example, IR signals to control the AC2, as well as the rest of the system, come from several IR sources, as shown.
- RC68+ commands, needed to control the AC2, are "taught", where applicable, to the Smart Pad<sub>3</sub>, the 590 controller and a learning remote, such as the Xantech URC types.
- In this case, a 789-44 Connecting Block is used to divide the IR signal evenly between the emitters and the IR INPUT of the AC2.

Remember, all IR signal sources connect to the INPUT (signal) side of the connecting block and all output devices connect to the OUTPUT (emitter) side.

- Since the 590 controller is powered separately, only a 2-conductor cable is required to connect Signal (O) and Gnd (G) to the input side of the 789-44 Connecting Block, as shown.
- Other IR signal sources, such as the Zone and Common IR outputs of the Xantech ZPR68, may be connected in the same manner to drive the IR INPUT of the AC2.

**NOTE:** The power cord of the AC2 should normally be plugged into an un-switched AC outlet. However, if the power to the AC2 is turned off by a power failure, or other cause, the internal memory will retain the last IR selected switched condition for the outlet.

**IMPORTANT:** DELAY action *does not* work with the IR INPUT terminals. If a delay is needed, simply add it as part of a command sequence in the IR learning device.

### Using all Three Inputs Simultaneously

It is possible to make simultaneous connections to the CONTROL IN, VIDEO IN and IR INPUTs in a complex system. The AC2 responds to the three inputs in a logical "OR" fashion. That is, the SWITCHED OUTLET will turn ON with the arrival of the first control in signal and will switch OFF only after the last control signal is removed.

**NOTE:** The IR input signal will have no effect on operation as long as the CONTROL IN and VIDEO IN have control signals present.

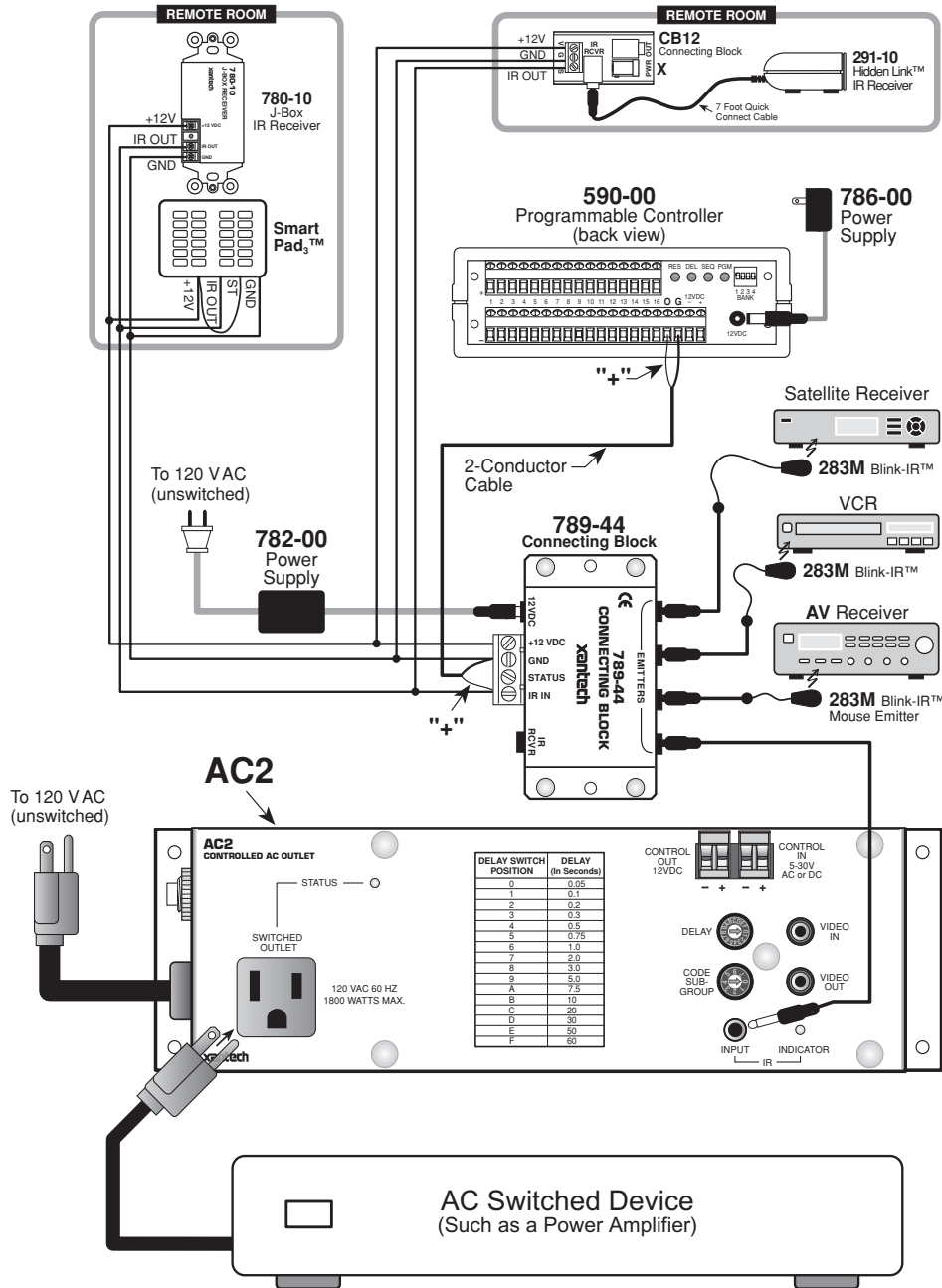


Fig. 7 Using the IR INPUT jack on the AC2 in an IR Controlled System