



Electronic Control for TIME SERIES Loudspeakers

TIME CONTROLLER



 SpeakerCraft®

OWNER'S MANUAL

Congratulations on purchasing SpeakerCraft's TIME Controller. The TIME Controller allows custom configuration and control of your TIME Series Loudspeakers. With these electronics you can access and use the full features of the TIME Series Loudspeakers. This allows the user to control the tilt angle and direction of the woofer and tweeter, allowing the entire speaker to be aimed to create the ultimate listening environment possible from any ceiling speaker available.

The Controller also controls the zoning of the loudspeakers, the timing of the speakers being lowered/retracted into the room and communicates/interfaces with external electronics like the SpeakerCraft SmartPath™ Infrared Repeating System and the MZC™ family of control systems.

Note: The TIME Series Loudspeakers and Controller are a very sophisticated, customizable, and programmable electronics. These attributes add to the value of this system. However, due to this sophistication and flexibility, SpeakerCraft highly recommends the use of a qualified custom installation specialist when installing your TIME Loudspeakers and Electronics. If you need assistance in locating an installer, please contact SpeakerCraft at 1-800-448-0976.

ELECTRONICS PLACEMENT

Placing the TIME Controller depends on the overall system architecture and the equipment that you will attach to it. A general rule of thumb is to place the electronics near the location of the amplifier with which you will attach most of the TIME Loudspeakers that the electronics will control. This allows the installer to run speaker wire and Cat 5 cable from the loudspeakers to the same location. However, many variations and options exist for installing this equipment. For instance, if the area that the system will be used in is remote to the listening area, you may need to attach a SmartPath™ IR repeating system or a remote IR Sensor. Please contact an authorized SpeakerCraft dealer if you need assistance with choosing the proper location for your TIME Controller and peripherals that need to be attached to it.

If you are going to rack mount the electronics, attach the rack mount ears to the chassis using the supplied rack mount ears. Unscrew the two screws on each side of the chassis and screw the ear to the chassis using these screws. Do this for each ear on either side of the chassis.

Run all TIME Loudspeaker Power Cables from the loudspeaker locations to this location. If you are going to attach any trigger inputs, RS232 cables, IR Receivers or External IR inputs to the unit, run these cables to this location, also. See the appendix for wiring information on these connections.

Overview of TIME Controller

1 – DC Power Input – Connect External AC Power Supply to the Controller.

2 – Speaker Outputs – Connect RJ45 Cable from each speaker to these connectors.

3 – 3-30V (AC/DC) Trigger Inputs – Connect 3.5mm triggers to jack 1-3. Jack 1 controls ZONE 1, Jack 2 ZONE 2 and Jack 3 ZONE 3.

4 – RS232 Input – Connect a standard RS232 cable here to send commands to control the system. See Appendix for wiring information and programming details.

5 – External IR input – this mono 3.5mm input connection allows an un-powered IR input to control the system. See appendix for wiring information.

6 – IR Receiver Input – Using SpeakerCraft's patented quad 3.5mm input connection, connect a powered external IR receiver to this input and IR signals can be received from that external IR Receiver. See appendix for wiring information.

7 – Auto Sense Switch – This switch enables the unit to automatically detect audio into the loudspeaker and bring the speaker to its installer configured preset position.

8 – Dip Switch – Dip Switches 1-4 control the delay TIME of the Loudspeaker returning to the closed position, when Auto Sense is enabled. See Table 1 for details. Dip Switches 5-8 determine the loudspeakers assigned to each zone. See Table 2 for details.

9 – Activity LED's – These LED's allow a user to see which speakers are active and they also indicate activity when the unit is first powered On.

10 – IR Receiver Lens – IR signals from the remote are received through this lens.

Pre-Installation Considerations

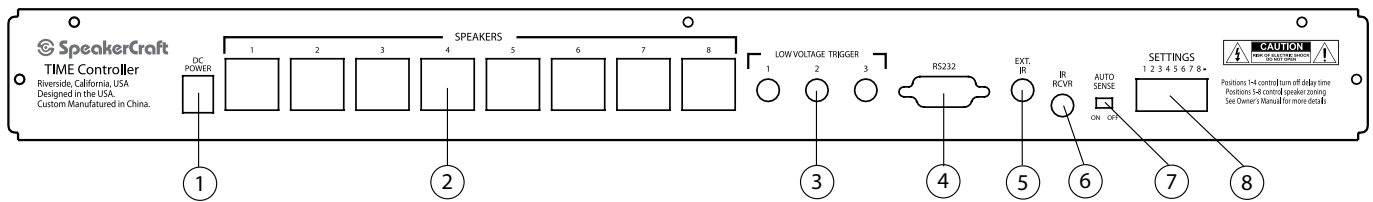
There are some items to consider before installing the TIME Controller.

1. To use Auto Sense or not

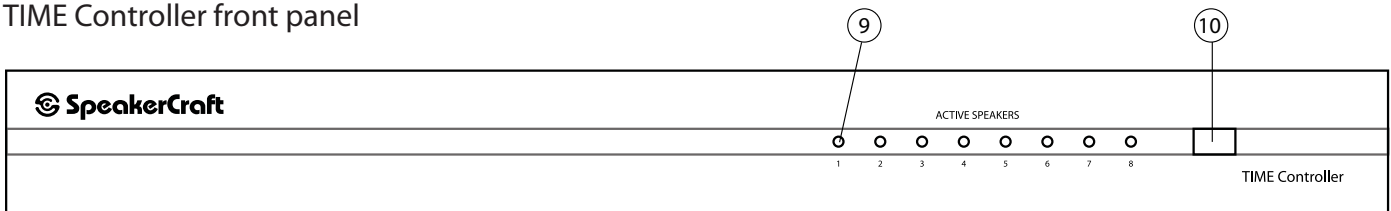
Auto sense is the ability of the TIME Controller to sense audio being played to the loudspeaker and to activate all loudspeakers in that zone to go to their default position. The installer has the option to use this function or not depending on the other control systems being used with the TIME Controller. For most installations this function will be used.

When using the Auto Sense function, there is a turn on time and a turn off time. The turn on time is the time it takes for the loudspeakers to react to a music source being activated. Once the Controller senses music in the speaker, the speaker

TIME Controller rear panel



TIME Controller front panel



starts moving to its programmed default position. This occurs in a fixed amount of time and is not programmable.

However, to avoid retracting the loudspeakers in soft passages, especially in movies there is a programmable turnoff time. The installer can choose the amount of time they would like to have before the speakers turn off and retract into the ceiling. The first four positions of the dip switches on the rear panel of the TIME Controller program this delay Time. **Table 1** shows the delay times that can be programmed into the TIME Controller using the dip switches on the rear of the unit. Please choose the time you want to use and set the dip switches accordingly. The last setting should only be used to test the system. This small amount of delay will make the speakers open and close during soft passages in movies or music.

Table 1 – Dip Switch Settings (1-4) Turn Off Delay TIME

Dip Switch (pos 1-4)	Delay TIME
0000	5.0 min
0001	5.5 min
0010	6.0 min
0011	6.5 min
0100	7.0 min
0101	7.5 min
0110	8.0 min
0111	8.5 min
1000	9.0 min
1001	9.5 min
1010	10.0 min
1011	10.5 min
1100	11.0 min
1101	11.5 min
1110	12.0 min
1111	5 secs (for testing only)

NOTE: When changing the dip switch settings, make sure you cycle power to insure that the changes are incorporated in to the unit's standard operations

2. Assigning Speakers to each zone

For a TIME System a zone is a set of speakers which all play at the same time and from the same source of music. Therefore a Radio Tuner, CD, DVD, iPod Player and a Satellite Tuner are all different sources. If you have a home theater room, dining room, living room, Master Bedroom, Kid's bed room, Bathroom, Kitchen and Patio, these are all different rooms. A room can only be part of one zone, but multiple rooms can belong to one zone.

Let's illustrate this with examples:

Assume we have a home with a home theater room, a kitchen and dining room. The home theater has 5 TIME Speakers (speakers 1-5), The Kitchen has one TIME Speaker (speaker 8) and the dining room has two TIME speakers (speakers 6 & 7). You don't want the DVD playing in the home theater to play in the dining room. You don't want the Radio in the kitchen to play in the dining room, where you want the CD playing. Therefore, Speakers 1-5 are in Zone 1, Speakers 6 & 7 are in zone 2 and speaker 8 is in Zone 3. Call this example 1.

In a different home, you have TIME Speakers in the living room (a stereo pair), in the Dining Room (a stereo pair), and a great room (two sets of stereo pairs). You want all the same music playing in the rooms at the same time, therefore when one is on the other speakers are on too. This means you have one zone of eight speakers. Call this example 2.

If you did not want the same music playing in all the areas at the same time, then you would have three different zones with 4 speakers in one zone and two in two other zones. Call this example 3. If you did not want the same music playing in all the areas at the same time, then you would have three different zones with 4 speakers in one zone and two in two other zones. Call this example 3.

In example 1, you would set the dip switches to 0001. In Example 2 you would set the dip switches to 0000. In example 3 you would set the dip switches to 0110.

Depending on how the zones are setup, you set the dip switches on the TIME Controller. To setup the TIME Controller correctly, you only have to consider the TIME Speakers in the system, not all speakers in the system. The possible zone settings and the corresponding dip switch settings are shown in **Table 2**.

Table 2 – Dip switch (positions 5-8) Settings Table

Dip Switch (pos 5-8)	Zone 1	Zone 2	Zone 3	Zone 4
0000	Spkr 1-8	None	None	None
0001	Spkr 1-5	Spkr 6,7	Spkr 8	None
0010	Spkr 1-7	Spkr 8	None	None
0011	Spkr 1-6	Spkr 7,8	None	None
0100	Spkr 1-2	Spkr 3-4	Spkr 5-6	Spkr 7-8
0101	Spkr 1-4	Spkr 5-8	None	None
0110	Spkr 1-4	Spkr 5-6	Spkr 7-8	None
0111	Spkr 1-3	Spkr 4-5	Spkr 6-7	Spkr 8

By setting up the zones correctly and in turn positioning the dip switches correctly. The auto sense function on the control hub and the zone buttons on the remote control can function as the user would expect.

NOTE: When changing the dip switch settings, make sure you cycle power to insure that the changes are incorporated in to the unit's standard operations.

3. Bringing the speakers into the room - many options

When setting up the TIME Controller for the TIME Speakers. There are many options for tuning the speakers "On" (bringing speakers to their optimal playing position). The operator could do this: manually with the Power ON/OFF button on the remote; automatically using the built in Auto Sense Function, as described in Step 1 and 2 of this section; using a 3V-30V AC/DC trigger voltage; by RS232 Command; by IR commands from an IR sensor input or electrical control system. All of these options are available and need to be setup during the installation of the system. Consult a Authorized SpeakerCraft Installer to determine the correct method for the system you are installing

Connecting the TIME Controller

Do not plug in the AC power supply to the unit until all Loudspeakers are connected to the TIME Controller and any peripheral control systems are plugged into the TIME Controller.

NOTE: Serious & Permanent Damage can occur to the Controller or the TIME Loudspeaker, if you plug and unplug Cat 5 connectors into the TIME Controller when power is applied to it. Always remove power to the TIME Controller when connecting or disconnecting Cat 5 Connectors.

Attach all TIME Speaker Power Cables (Cat 5 cable with RJ45 connectors) to the Loudspeaker and to the TIME Controller. Pay attention to the zoning of the loudspeakers as this will effect the overall operation and control of the system.

For basic system operation using a remote, the system is now connected. However, if a remote IR Receiver is being attached to the TIME Controller, please attach it to the IR Receiver port on the Controller, as shown in the appendix. If a SmartPath™ IR repeating system is being connected, please attach it as shown in the Appendix.

If you are attaching a MZC™ control system using the RS232 port, connect it now. If external triggers are going to be used to control Loudspeaker movements, connect them now.

Once all Loudspeaker Power Cables, external controls and accessories are connected to the TIME Controller and the Dip Switches are set, as desired, plug the supplied AC Power connector into the unit and plug the AC Power Pack into a AC wall socket.

The unit is now ready to program using the TIME Remote Control or the TIME Tester Application, as described in the Appendix.

PROGRAMMING THE SPEAKER LOCATIONS AND PRESETS

The Loudspeakers can now be controlled and presets programmed for the system. See the TIME Remote Owner's Manual for details on how to use the remote to program the unit, but the general flow of programming each loudspeaker is as follows (see the TIME Remote in the appendix for Time Remote Button locations):

1. For each loudspeaker in a zone, first select that zone.
2. Then use the Loudspeaker Select + or – button to select the loudspeaker you want to control.
3. When the correct Loudspeaker's LED you want to control is lit, press the Control button on the remote and the LED should start flashing.

4. Use the Remote rotational wheel and the tilt angles to correctly position the Loudspeaker as you desire.

5. If you want to store the speaker settings in that zone to a preset button, Press and hold the Store button on the remote until all LED's on the remote flash. Then press the On/Off button or one of the Preset buttons (1, 2 or 3) on the remote. The LED's on the remote should stop flashing. **NOTE:** if you want to exit the store function without saving a preset, then simply press the Store button on the remote a second time. When you are done controlling that Loudspeaker press the Control button on the remote.

6. Go to the next Loudspeaker you wish to position by repeating steps 3 thru 5 above.

7. Steps 3-6 can be repeated for different pre-sets for this zone.

8. Steps 1 thru 7 can be repeated for each loudspeaker zone, as the system requires.

Note: Loudspeaker movement and locations can also be done through the use of the Time Tester application as described in the Appendix.

TRIGGER INPUTS

If you want to use trigger inputs (3-30V A/C or D/C) to cause the loudspeakers to come into the room in a specific location, then set the Time Controller Auto Sense switch to the OFF position. Then apply a trigger input from an external device to activate that mode.

For instance you could have a home theater zone have a home theater setup and when the TV and the amplifier is turned on, the trigger voltage sets the speakers to the home theater position.

If the Amplifier is the only device to come on, then the speakers go to the 5 speaker stereo position. To accomplish this you may need to use external devices. However, some components have voltage outputs that are designed for this use.

In addition there are devices that can be used as part of an automated system that will provide voltage to enable the modes. The voltage source must be connected to the trigger-input jack on the back of the time Controller using the wiring on the trigger input connector shown in Appendix A.

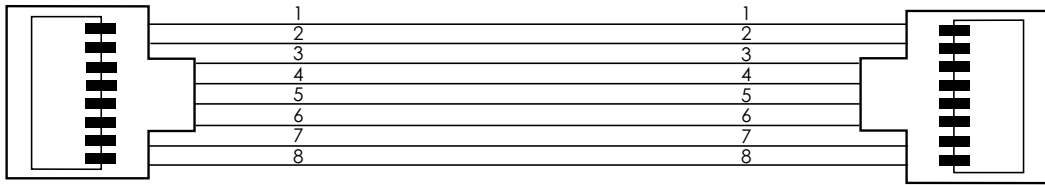
If you need help configuring this correctly, please contact SpeakerCraft's Technical Support or a SpeakerCraft Authorized Installer.

APPENDIX A

TIME Loudspeaker Power Cable

The wiring for the Cat 5 Cable is a straight thru connection. Typically the following convention is used:

RJ45 Cable



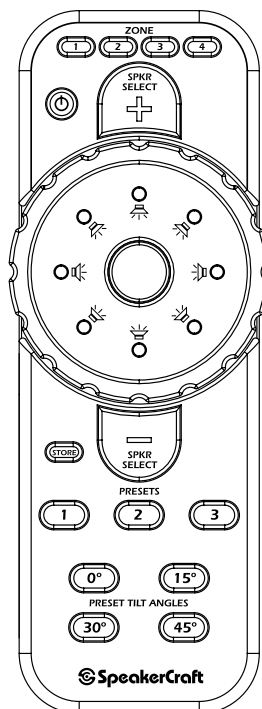
Hub Side

Speaker Side

RJ45 Pin#	Wire Color (T568B)	Wire Diagram (T568B)	Signal
1	White Orange		GND
2	Orange		GND
3	White Green		GND
4	Blue		485+
5	White Blue		485-
6	Green		VCC
7	White Brown		VCC
8	Brown		VCC

The important thing is that pin 1 of the Speaker Side connector and pin 1 of the Electronics side connector are connected. Same for Pin 2, Pin 3, etc. So that all 8 pins of the speaker side connector are connected to the corresponding pin on the electronics side connector.

TIME Remote (for reference only)



USING RS232

Settings

The serial baud rate for this protocol is 9,600bps. All serial communications use 8 data bits, no parity and one stop bit (8-N-1). Serial hardware flow control (i.e., RTS/CTS and DTR/DSR) and software flow control (i.e., XON/XOFF) protocols are not used and will be ignored.

Programming Commands

All command packets shall be of the following format:

*<command><parameter 1><parameter 2><CR>

Notes: Each <...> represents a single ASCII character. <CR> represents a carriage return.

The Controller will ACK each recognized command with an asterisk (*). The Controller will NACK each unrecognized command with a period (.).

Zone Command: *Z<parameter 1><parameter 2><CR>

Command	Equivalent Remote Button	Action
*Z01<CR>	Zone 1	Selects Zone 1 speakers
*Z02<CR>	Zone 2	Selects Zone 2 speakers
*Z03<CR>	Zone 3	Selects Zone 3 speakers
*Z04<CR>	Zone 4	Selects Zone 4 speakers

Power Command: *P<parameter 1><parameter 2><CR>

Command	Equivalent Remote Button/Action	Action
*P00<CR>	None	Off Command
*P01<CR>	None	On Command
*P02<CR>	On/Off	On/Off Command

Speaker Select Command: *S<parameter 1><parameter 2><CR>

Command	Equivalent Remote Button/Action	Action
*S++<CR>	Speaker Select +	Scrolls Selected Speaker Forward 1
*S--<CR>	Speaker Select -	Scrolls Selected Speaker Back 1
*S01<CR>	None	Speaker 1 Select
*S02<CR>	None	Speaker 2 Select
*S03<CR>	None	Speaker 3 Select
*S04<CR>	None	Speaker 4 Select
*S05<CR>	None	Speaker 5 Select
*S06<CR>	None	Speaker 6 Select
*S07<CR>	None	Speaker 7 Select
*S08<CR>	None	Speaker 8 Select
*S!!<CR>	None	Cancels select mode

Rotate Speaker Command: *R<parameter 1><parameter 2><CR>

Command	Equivalent Remote Button/Action	Action
*R++<CR>	Rotate Dial Clockwise	Rotates Speaker Right
*R--<CR>	Rotate Dial Counter-Clockwise	Rotates Speaker Left
*R!!<CR>	None	Stop

Control Command: *C<parameter 1><parameter 2><CR>

Command	Equivalent Remote Button/Action	Action
*C00<CR>	Control	Sets the Selected Speaker in Control Mode
*C01<CR>	None	Sets Speaker 1 in Control Mode
*C02<CR>	None	Sets Speaker 2 in Control Mode
*C03<CR>	None	Sets Speaker 3 in Control Mode
*C04<CR>	None	Sets Speaker 4 in Control Mode
*C05<CR>	None	Sets Speaker 5 in Control Mode
*C06<CR>	None	Sets Speaker 6 in Control Mode
*C07<CR>	None	Sets Speaker 7 in Control Mode
*C08<CR>	None	Sets Speaker 8 in Control Mode
*C!!<CR>	None	Cancels control mode

Store Command: *H<parameter 1><parameter 2><CR>

Command	Equivalent Remote Button/Action	Action
*H00<CR>	Store	Sets the Controller in Store Mode
*H01<CR>	Store->Preset 1	Store the Current Position in Preset 1
*H02<CR>	Store->Preset 2	Store the Current Position in Preset 2
*H03<CR>	Store->Preset 3	Store the Current Position in Preset 3
*H99<CR>	Store->On/Off	Store the Current Position in On/Off

Preset Command: *M<parameter 1><parameter 2><CR>

Command	Equivalent Remote Button/Action	Action
*M00<CR>	Long press on Power	Recalls Speaker Positions for default Power on
*M01<CR>	Preset 1	Recalls Speaker Positions for Preset 1
*M02<CR>	Preset 2	Recalls Speaker Positions for Preset 2
*M03<CR>	Preset 3	Recalls Speaker Positions for Preset 3
*M04<CR>	Long press on Preset 3	Moves Speaker for Dog Access

Tilt Command: *T<parameter 1><parameter 2><CR>

Command	Equivalent Remote Button/Action	Action
*T00<CR>	0°	Tilts Selected Speaker to the 0 Degree Position
*T15<CR>	15°	Tilts Selected Speaker to the 15 Degree Position
*T30<CR>	30°	Tilts Selected Speaker to the 30 Degree Position
*T45<CR>	45°	Tilts Selected Speaker to the 45 Degree Position
*T++<CR>	None	Moves Speaker Down
*T--<CR>	None	Moves Speaker Up
*T!!<CR>	None	Stops Speaker Movement

Queries

All query packets shall be of the following format:

?<query><parameter 1><parameter 2><CR>

Note: Each <...> represents a single ASCII character. <CR> represents a carriage return.

The Controller will respond to each recognized query by responding with the queried parameters and ending with a '?'. The Controller will NACK each unrecognized query with a period (.).

Dip Switch Query: ?D<CR>

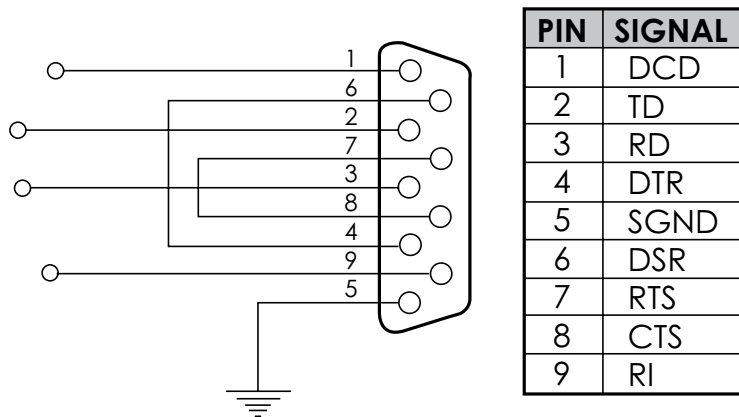
Query	Controller Response
?D<CR>00?	(All switches Off)
	01? (Switch 1 On, rest Off)

	FE? (Switches 1-7 On, 8 Off)
	FF? (All switches On)

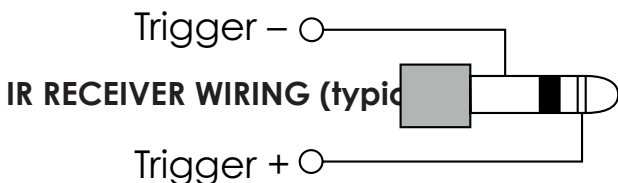
Power Query: ?P<CR>

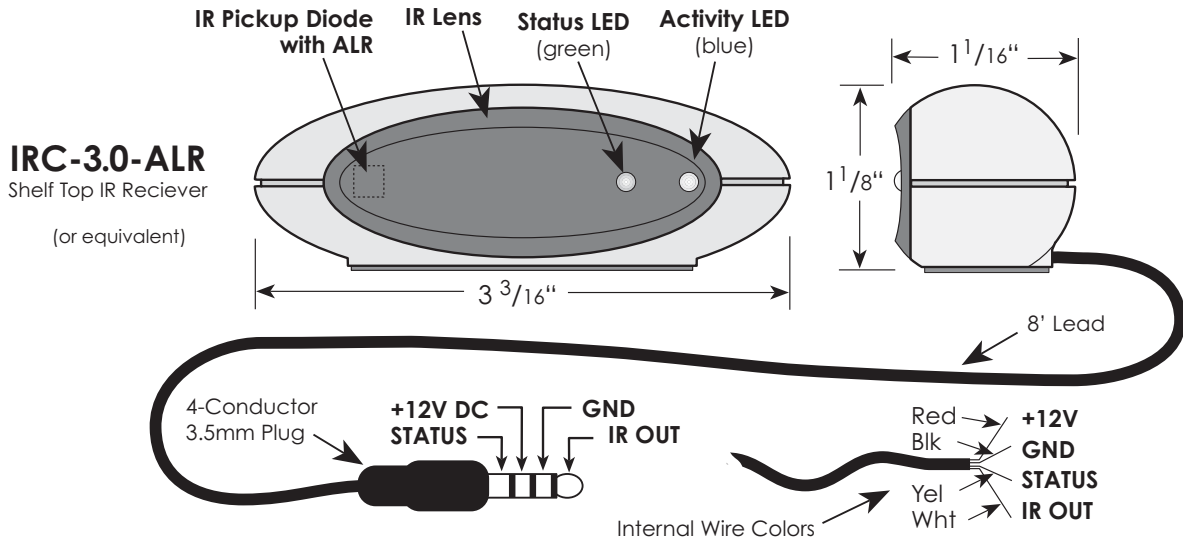
Query	Controller Response
?P<CR>0?	(Off)
	1? (On)

RS-232 Connector Wiring

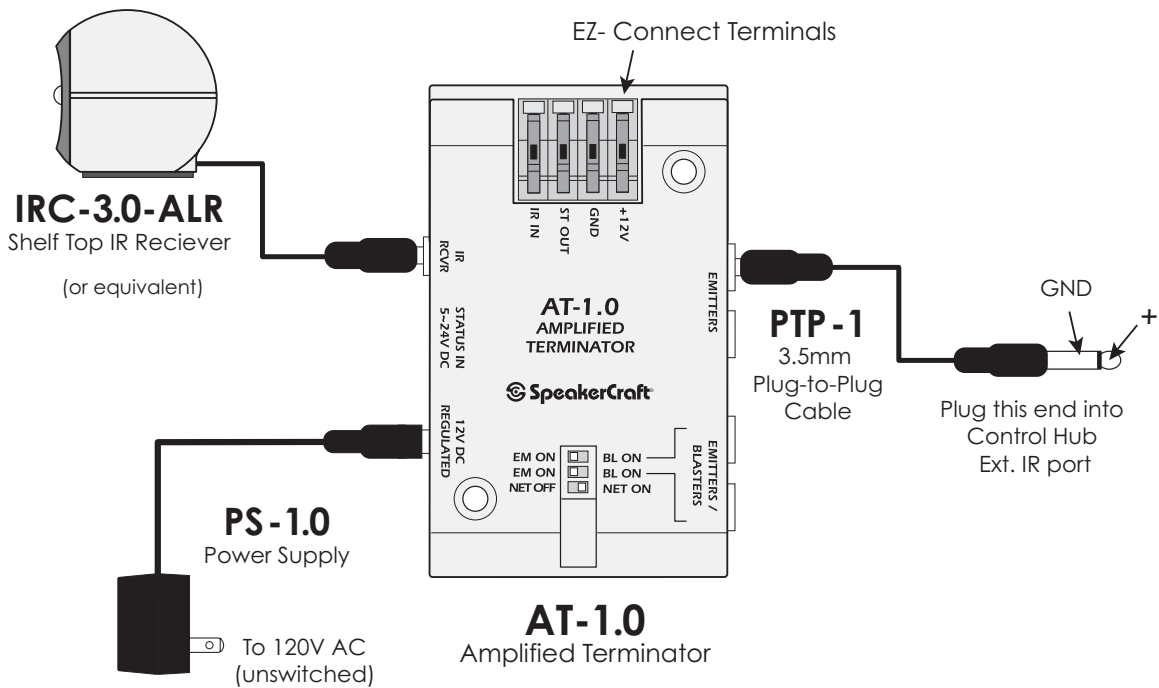


Trigger Input Wiring

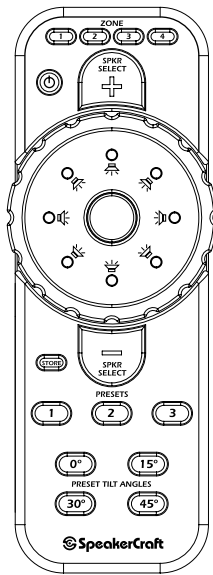




SmartPath™ IR REPEATING SYSTEM WIRING (typical)



Time Remote Control Operations



- Speakers are in zones based on dip settings on control box as follows:

Dip Sw	Zone 1	Zone 2	Zone 3	Zone 4
0000	Spkr 1-8	None	None	None
0001	Spkr 1-5	Spkr 6,7	Spkr 8	None
0010	Spkr 1-7	Spkr 8	None	None
0011	Spkr 1-6	Spkr 7,8	None	None
0100	Spkr 1-2	Spkr 3-4	Spkr 5-6	Spkr 7-8
0101	Spkr 1-4	Spkr 5-8	None	None
0110	Spkr 1-4	Spkr 5-6	Spkr 7-8	None
0111	Spkr 1-3	Spkr 4-5	Spkr 6-7	Spkr 8

Note: Pressing the zone button for the first time, in any zone, after power up, will cause the speakers in that zone to calibrate themselves, which means that they will go to the 0 degree and full counter-clockwise position.

1. Pressing Zone 1-4 chooses the speakers in that zone and allows presets, on/off to work on those speakers
2. Pressing Speaker Selector + button sends control to the next speaker that can be controlled in that zone in a clockwise order. Pressing Speaker Selector - button sends control to the next speaker that can be controlled in that zone in a counter clockwise order. The LED on the loudspeaker selected should light on the on the unit (the light on the remote is not synchronized to the speaker being selected it is only a visual indication that you have moved to the next speaker).
3. To control the movement of a speaker in the room, after selecting the loudspeaker you want to control, press the Control button and the light on the speaker selected should begin flashing.
4. After selecting the speaker for control, turning the Dial on the remote to the right or left causes the speaker to rotate to the desired location. The LED on the speaker is at a point considered the "pointing direction." So line up the LED where you want the speaker to point.
5. While the speaker is selected for control, use the Preset Tilt Angles to lower the loudspeaker into the room. Depending on the height of the room and the desired prime listening area, determines the proper angle to use. Choose 0°, 15°, 30°, or 45° to angle the loudspeaker to the desired location.
6. When you are done controlling that loudspeaker, press the Control button and the LED on the loudspeaker should stop flashing and be lit all the time.
7. Return to step 2 for the next speaker you want to control and repeat steps 4 and 5 until all speakers in the zone are aimed the way you want them to be.
8. To store the preset for the new speaker locations in that zone after you set all the speakers in that zone and while you are still in the control mode, press and hold the store button, until all LED's on remote flash, indicating that you are in the Store mode. Then you press one of the presets 1-3 or the On/Off button (this is a disguised installer default location so that users will be less likely to reset this position). If you press the Store button again, you will exit the store mode.
9. To bring the loudspeakers into a preset position. Press the zone button of the loudspeakers you want to control and then press "On/Off" button or one of the preset locations 1-3. All the speakers in that zone will then move to their preset position.
10. If you press the Power On/Off button the loudspeakers will either be lowered into the room if they were closed before pressing the button or raised into the ceiling if the loudspeakers were lowered into the room before the button was pressed. Pressing the On/Off button momentarily to bring the loudspeakers into the room returns them to the position they were before the system was turned "off."
11. If you press and hold the On/Off Button for more than 3 seconds, the speakers in that zone will return to their dealer preset positions.
12. If you press and hold the Preset 3 Button for more than 3 seconds, the speakers will move so that the dog screws can be accessed for installation or removal of the loudspeaker from the ceiling.

Note: If buttons on the remote are not pressed for 1 minute, then the remote should go into a sleep mode until a button is pushed.

SPECIFICATIONS

TIME Controller

Dimensions: W 17" x H 2" x D 6"
(431.8mm x 50.8mm x 152.4mm)

Rack Mount: W 19" x H 2" x D 6"
(482.6mm x 50.8mm x 152.4mm)



Limited Two-Year Warranty

SpeakerCraft Inc. warrants to the original retail purchaser only that this SpeakerCraft product will be free from defects in materials and workmanship for a period of two years, provided the product was purchased from a SpeakerCraft Authorized Dealer. Defective products must be shipped, together with proof of purchase, prepaid insured to the SpeakerCraft Authorized Dealer from whom they were purchased, or to the SpeakerCraft factory at the address listed on this installation instruction manual. Freight collect shipments will be refused. It is preferable to ship this product in the original shipping container to lessen the chance of transit damage. In any case, the risk or loss or damage in transit is to be borne by the purchaser. If upon examination at the Factory or SpeakerCraft Authorized Dealer it is determined that the unit was defective in materials or workmanship at any time during this warranty period, SpeakerCraft or the SpeakerCraft Authorized Dealer will, at its option, repair or replace this product at no additional charge, except as set forth below. If this model is no longer available and can not be repaired effectively, SpeakerCraft, at its sole option may replace the unit with a current model of equal or greater value. In some cases where a new model is substituted, a modification to the mounting surface may be required. If mounting surface modification is required, SpeakerCraft assumes no responsibility or liability for such modification. All replaced parts and product become the property of SpeakerCraft Inc. Products replaced or repaired under this warranty will be returned to the original retail purchaser, within a reasonable time, freight prepaid. This warranty

does not include service or parts to repair damage caused by accident, disaster, misuse, abuse, negligence, inadequate packing or shipping procedures, commercial use, voltage inputs in excess of the rated maximum of the unit, or service, repair or modification of the product which has not been authorized or approved by SpeakerCraft. This warranty also excludes normal cosmetic deterioration caused by environmental conditions. This warranty will be void if the Serial number on the product has been removed, tampered with or defaced. This warranty is in lieu of all other expressed warranties. If the product is defective in materials or workmanship as warranted above, the purchaser's sole remedy shall be repair or replacement as provided above. In no event will SpeakerCraft be liable for any incidental or consequential damages arising out of the use or inability to use the product, even if SpeakerCraft Inc. or a SpeakerCraft Inc. Authorized Dealer has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the exclusion or limitation of consequential damages, so the above limitation and exclusion may not apply. All implied warranties on the product are limited to the duration of this expressed warranty. Some states do not allow limitation on the length of an implied Warranty. If the original retail purchaser resides in such a state, this limitation does not apply.

