



# USER MANUAL



## Radio Frequency Remote Control (ARC2)

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**3.3.18**

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## 2. Safety



Before you operate the unit, read this manual carefully.

Make sure to keep the manual, in case you need to consult this manual again or you give the unit to another person.

Always make sure to include this manual if you hand out the unit to another person.



Do not operate the unit in areas where the usage of radio frequency or mobile phones is prohibited, like for example in airplanes, or when it may cause interference or danger.



Only qualified personnel may repair this product.  
Don't open the case.



This device conforms to CE -or- FCC regulations, see type label!

It radiates in the 868 MHz or 915 Mhz bands.

Always make sure, that your national regulations allow the use of this device!



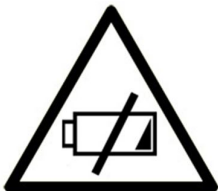
Only insert Alkaline batteries, rechargeable batteries do not have enough voltage to power the ARC2 remote control.

Keep batteries away from children. In case of a choking hazard go to the doctor immediately.

Make sure contacts are clean before you insert batteries.

Watch the polarity.

Don't try to recharge batteries.



**MAKE SURE TO FULLY CHARGE ALL BATTERY-POWERED ASTERA LAMPS WHEN STORING THEM.**

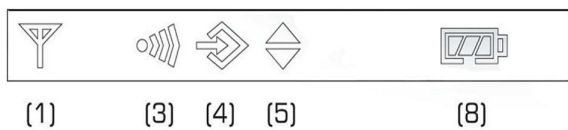
**PARTIALLY CHARGED BATTERIES WILL LOOSE CAPACITY**

### 3. Getting Started

#### a. Overview



#### b. LCD Display



#### Definition of symbols:

- (1) - Receiving
- (3) - Transmitting
- (4) - Inside Editor mode
- (5) - Synchronization between units is active
- (8) - Battery status

### c. Introduction

Astera ARC2 radio frequency remote control is being used to control Astera's wireless lamps, wireless controllers and wireless DMX transmitters. The system offers several sets of predefined effects and predefined programs that can be quickly launched.

For advanced applications the programs can be customized over the Editor (see Chapter 5.a). The re-playing colors can be defined to fit a theme or corporate identity. These colors can be used in programs which can be adjusted on speed, brightness and fading effects.

It is also possible, to address, group and synchronize several units and to stretch programs over several lamps. For example the **RAINBOW** effect can be stretched over two or more units displaying the full rainbow spectrum at the same time.

### d. Navigation

Navigation through the system is done with the top 4 buttons of the remote control. Enter confirms a value, + and – button choose a value and Back moves up 1 level in the navigation.



The top level of the navigation contains direct control, the 3 sets of pre-defined memory programs (MEMORY 1 – MEMORY 3) as well as an area to store own programs (MEMORY 4) and the SETUP. The + and – buttons are used to navigate between them and Enter offers deeper editing of the MEMORY programs and the setup.



From any point in the navigation, the home button can be pressed to return to the top level of the navigation. This is especially useful when an inexperienced user gets lost in advanced settings and is afraid he will alter important settings.

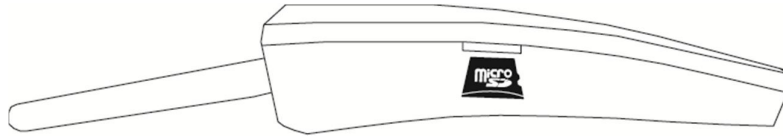
### e. Power Button



**Power Mode: LIGHT ON:** Returns from **BLACKOUT** to normal operation.

**Power Mode: BLACKOUT:** Switches all targeted lamps off and keeps them in standby, causing only minimal battery drainage. In blackout mode, fixtures can be stored several months

### ***f. Micro SD card***



For special functions like saving programs and firmware update a micro SD card can be inserted into the ARC2. For detailed instructions about how to do a factory reset, refer to Appendix 5.

### ***g. Batteries***

In many countries, the ARC2 ships without batteries due to safety regulations. If this is the case for you, please buy 2 Alkaline AA batteries and insert them in the correct positioning with + and – positioned correctly. Do not use rechargeable batteries as they do not work stable.

When closing the battery compartment push each corner until the compartment cover sits in the right position. Then close the slider to fix the battery compartment in a closed position.

## 4. Direct Control Tab

### ***a. Direct Control***

To change the displayed colors and effects, the ARC2 offers a straightforward interface called direct control tab. While in this tab, the white buttons can be pressed to quickly change values of colors, effects, fade, speed and brightness.

*To reach the direct control tab, simply press the home button.*

### ***b. Programed Effects***

There are 20 customizable effects that can be selected when in the direct control tab. These effects use up to 4 colors to display static or moving structures. These structures are formed out of several pixels and can stretch over several lamps as well. A list of the 20 programs can be found in Appendix 2.

*To change a programmed effect, press the Prog button and use the + and – buttons to choose an effect. This only works while in the direct control tab.*

**Note:** *It is also possible to let the random chaser choose colors for the programs. To use this feature, see Chapter Appendix 10.3. Every time the Programs setting is changed, random color chaser will be switched off!*

**Note:** *programs are best displayed on a multi-pixel lightsource (e.g. the AL6 series) or stretched over a group of lamps. If used with a one-pixel lightsource (e.g. AL3-M) only one color will be shown at a time.*

### ***c. Colors***

You can customize the pre-defined programs with up to 4 colors (C1-C4). All predefined programs, except RAINBOW take the displayed colors from a four color palette. This palette can be defined by selecting the colors C1, C2, C3 and C4 and is shown at the top of the remote control when editing the colors. For example, if PROGRAM is set to SIMPLE RUNNING, background color will be C1, and the color of the running pixel will be C2.

There are 3 kinds of colors available for that:

- |                         |   |
|-------------------------|---|
| <b>Standard Colors:</b> | red, orange, yellow, green, cyan, blue, magenta, pink, white warm, color warm, black can be quickly chosen        |
| <b>Index Colors:</b>    | 256 standard index colors can be chosen when selecting INDEX COLORS. The colors are listed in Appendix B          |
| <b>User Colors:</b>     | If this is not enough choose USER COLORS. Here, you can mix colors out of the 3 color channels (red, blue, green) |

*To change colors, click any of the C1 – C4 buttons to change their color. This only works while in the direct control tab.*

**Note:** *Not all programs use all 4 colors (C1-C4). For example the program called TWO COLOR STATIC uses only 2 colors so half of the pixels will be in C1 and the other half in C2.*

## ***d. Adjustments***

The programs you have chosen can be further adjusted in fade, speed and brightness.

*Simply click fade, speed or the brightness button and use the + and – button to change their values. This only works while in the direct control tab.*

**Fade:** Sets fading transitions between steps of the program in amount of the step-time. If set to 0%, there will be no fading at all, the color will be switched at once. If set to 100%, the color change will go smoothly from one to the other color. Any value in between will be a mix of these two settings.

**Speed:** Changes the speed of the program. A time between 0,09 seconds and 9 minutes and 21 seconds can be set. This time reflects the duration of the selected program.

**Note:** *With the change of speed you might get the units out of sync. In order to re-sync press the Send key or change the program (Chapter 4.b)*

**Brightness:** You can select the Brightness Intensity or the Power Scheme of the lamp. Both are strongly affecting the battery runtime of the lamps. Choose INTENSITY to change the brightness of the LEDs between 0% and 100% in intervals of 10%. Choose Power Scheme to adjust the overall power scheme of the lamp between HIGH-BRIGHTNESS, NORMAL and MAXIMISE RUNTIME. When choosing high-brightness, the LEDs are about 30% brighter but the battery will drain faster. In maximise runtime the LEDs are less bright but the fixture can be used well over 10 hours.

**Attention:** *Battery runtime of all the Astera lamps is stated for the Normal power scheme. Altering the power scheme will lead to different battery runtime.*

**Note:** *New Astera fixtures and ARC2s are set to HIGH BRIGHTNESS. Also, after a factory reset they will switch back to HIGH BRIGHTNESS.*



## 5. Preset Programs (MEMORY 1-4)

For quickly changing the mood of a lamp or setup of lamps, the 24 pre-programmed MEMORY programs can be quickly launched and optionally be customized (see Chapter 5. a-c).

*To start a MEMORY program, choose one of the pre-programmed MEMORY tabs and click one of the 8 white buttons*

*To reach the memory tabs, press the home button and press the + button*

In addition to the 3 pre-programmed tabs (MEMORY 1-3) the MEMORY 4 tab provides room for 8 own creations that can be launched with the white buttons when inside this set.

**MEMORY 1 decorative:** This set is suited for basic events, presentations, background lighting and a general decorative mood. Also, this is the set where the home-button leads to.

**MEMORY 2 party slow:** This set has pre-programmed color transitions for dinner parties, early hours of disco-nights etc.

**MEMORY 3 party heavy:** This set has fast and strong color effects, strobe-effects and rapid changes between colors. It is suited for dancing events and to highlight special parts of a show.

**MEMORY 4 user define:** This set is not pre-programmed by Astera. Chapter 5.a will discuss how its 8 keys can be programmed with customized colors and effects. It can be used by event-preparing companies to prepare special programs for their customers for quickly launching them during events.

### ***a. Editor***

The Editor is an advanced function that lets you customize the 3 sets of preset MEMORY programs (decorative, party slow, party heavy). In addition you can save your own programs onto MEMORY 4 user define if you want to keep the original programs in MEMORY 1-3. The Editor works similar to the direct control tab and while in the Editor you can use the white buttons to change their values (C1-C4, Fade, Speed, Brightness, Prog). Have a look at chapter 4. b-d if you don't know how to use these functions.

*To enter the editor, choose any of the 4 MEMORY sets, press and hold one of the 8 white buttons for 2 seconds. Alternatively, go to a MEMORY tab, choose any of the white buttons, and press enter to edit the button's memory.*

## ***b. Advanced Adjustments***

If adjusting colors, Program-effect, Speed, Fade and Brightness are not enough, a range of advanced adjustments can be changed in the Editor.

*To change additional adjustments of colors and programs enter the Editor then press the plus and minus buttons choose the setting you want to change and confirm with Enter.*

<b>Strobe Speed:</b>	Adjust frequency and confirm with Enter.
<b>Program Direction:</b>	Choose between forward (left to right), backward (right to left) and if you want to run the effect only once or repeat it in a loop.
<b>Program Parameter:</b>	Changes parameters depending on the program currently running.
<b>Blower Speed:</b>	Changes the power of the blower.
<b>Use Random Colors:</b>	When switched to YES it starts the random color chaser which places random colors on the 4 user color channels(C1 – C4). Each time tap-sync is pressed the 4 user colors will change.
<b>Random Mode:</b>	Features a range of different chaser modes. Overview in Appendix 3.
<b>Random Fade:</b>	Fading time of the random chaser.

## ***c. Saving Customized Programs***

At the end of setting Colors, Programs, Adjustments and Advanced Adjustments your ARC2 can save the chosen setting to one of the 8 white keys.

*To save settings select SAVE TO KEY x while inside the Editor. If you have not finished a selection, press the Back button until you see “Editor active”.*

## ***d. Additional Editing and Saving Functions***

In order to avoid accidental mistakes when saving a special selection to a particular button and overwriting existing settings, there are several tools to prevent misuse.

*In the top navigation, press the Enter button to Enter the Memory settings*

<b>Edit Key:</b>	Enter the Editor
<b>Offline Edit:</b>	Enter the Editor and edit programs and adjustments offline, without displaying the changes on the controlled lamps.

<b>Restore Key:</b>	Restore settings of a particular key
<b>Clear Key:</b>	Delete settings from a particular key
<b>Info:</b>	Show Firmware version, Hardware version and RF frequency
<b>Keylock:</b>	Set a keylock before handing the ARC2 to a customer to prevent him from deleting important program settings. You can choose to hide the SETUP menu from him or to hide SETUP and disable the function to overwrite programs.

### ***e. Tap-sync***



Tap-sync can be used to adjust the speed of the transitions of MEMORY 1-4 programs and programs defined by the user. It can be used to synchronize the lamps' speed to music that is played but also to the mood of an event.

*To tap-sync, while in the top level of the navigation press the tap-sync button twice in the rhythm you want to synchronize the lamps. If you not sure in which level you are, press the home button, then press tap-sync twice.*

*Tap-sync does not affect all types of programs. Only if they use a random color chaser, tap-sync has an effect.*

## 6. Targeting Lamps

A special button has been assigned to targeting only a selection of lamps that are within the reach of the remote control. Once one of the Target lamps options has been selected by choosing ENTER, BACK or the HOME button you will only target those selected lamps until another value in Target Lamps is chosen.

### Target lamps ...

**..by GROUPS** Each lamp can be set to belong to one of four groups (G1, G2, G3 or G4). Then each groups can be controlled individually, or groups can be linked together. If groups are linked, the program pattern stretches over them. New lamps or reset lamps are set to group 1

*Only sequential groups can be linked, for example G1+G2.  
It is not possible to link G1+G3.*

*The **GROUP** setting can be altered and assigned to lamps in **SETUP** using the **REMOTE SETUP** menu.*

**..by SET#** Lamps can be assigned to one of 255 possible set-addresses. More than one lamp can be assigned to one set number. In practice, usually a set of lamps will be assigned one set number. Each of these sets can be controlled individually.

*It is **not** possible to link sets together, so that programs stretch over them. Sets can easily be created by using **SETUP->CREATE A SET**.*

**..by TAPPING THEM** By using this setting, lamps will not receive any information, unless they are tapped. Tapped means, that their button is pressed after they indicate that new information is available. Usually they do this by a short white flash every 1-2 seconds.

**..by TYPE** If lamps of different types are used, they can be controlled by type. For example, if you have AL6 and AL3-S setup, they can be controlled individually by choosing their type.

**..by SERIAL NUMBER** If the serial number of a lamp is known, it can be addressed directly by entering the S/N into the remote control.

## 7. Setup

The setup offers advanced settings that can be done before or after an event like factory reset, forming groups of lamps, calibrating colors and setting a keylock when giving away the ARC2.

*To enter the SETUP menu, while in the top level of the navigation press the minus button ( - ) until you see SETUP, then confirm with Enter. If you are not sure in which level you are, press the home button, to get to the top level.*

*If SETUP does not appear on pressing the ( - ) button, check the KEYLOCK setting (Chapter 5.d).*

**Create a Set:** Sets combine several lamps which can be addressed at the same time and arranged in a preferred order to stretch effects over them. Unlike groups, a huge number of sets (256) can be programmed and targeted with the Target Lamps button. A set can also be applied to only 1 lamp if this lamp needs to be targeted quickly. There are several separate manuals and video manuals available to explain you how to create a set. Ask your local dealer for that.

**Create a Chain:** Chained lamps will stretch their effects and programs over several lamps. For example the FLAG RUNNING program can send a pixel running one AL6 until it reaches its edge, then continue on the next AL6. To allow a smooth running along the chain, correct positions have to be assigned to each lamp.

**DMX Setup:** Some Astera lamps do not have a LCD-display so the ARC2 can be used to set them up for DMX usage. Also, Astera lamps with LCD-display might be easier configured remotely for DMX because their display cannot be reached.

For additional information refer to the DMX table in Appendix 4.

**DMX Address:** Sets the DMX address

**DMX Pixels:** Most Astera fixtures can be defined as 1 pixel or several pixels.

**All pixels:** Every pixel can be controlled individually by DMX

**Reduced Pixels:** Pixels are combined to achieve a fewer pixel count for easier control. Please refer to the manual of the specific device to see how many pixels will be present on DMX when this setting is chosen.

**One Pixel:** The device can be controlled with only three DMX channels. All pixels are combined into one.

**DMX Tab:** Several different DMX tables can be chosen.

**RGB S RGB S..:** For each pixel there are three channels RGB and one channel stroboscope.

**RGB RGB S S..:** All RGB channels are followed by all stroboscope channels.

**Effect Mode Fix:** The 4 user colors are controlled by one channel per color (generates basic colors).

**Effect Mode RGB:** The 4 user colors are controlled by three DMX channels each.

<b>Strobe:</b>	<b>Single:</b>	One DMX channel is supplied for the control of the strobe function, all pixels will strobe identical. When using this setting, DMX TAB should not be set to RGB S RGB S..
	<b>Multiple:</b>	For each pixel, the stroboscope can be controlled individually.
	<b>Off:</b>	Stroboscope is turned off globally.
<b>DMX Failure:</b>		Sets the behavior of the light in case of an interrupted DMX signal.
	<b>Hold:</b>	Output remains unchanged, the last received DMX frame is displayed.
	<b>Emergency Light:</b>	If the DMX reception times out, the light turns white.
	<b>Blackout:</b>	If the DMX reception times out, all light turns black.
<b>Remote Setup:</b>		Usually all configuration settings, like changing the DMX address, chain configuration and so on is done directly on the units. This might not be feasible if several units with the same settings have to be configured with the same settings or a unit is not equipped with a LCD-display.
	<b>Remote Group</b>	Assigns lamps or sets into any of the 4 groups. If not programmed, all lamps are set to group 1.
	<b>Input Select</b>	If a lamp has several input signals (for example it is connected to a DMX cable but should be targeted by the ARC2) the preferred input signal can be defined
	<b>XLR DMX</b>	for the signal of wired DMX
	<b>Wireless DMX</b>	for the signal of wireless DMX
	<b>Remote Control</b>	for the radio signal of the ARC2
	<b>Standalone</b>	to keep the last input signal (for example 1 color) until another input source is chosen.
	<b>Auto</b>	Automatically chooses an input source
	<b>Emergency Light</b>	If no AC signal is detected, the light turns white.
	<b>No Action</b>	
<b>AC Failure</b>	<b>Blackout</b>	If no AC signal, all light turns black.
<b>Manual White Calibration:</b>		You can enable automatic white calibration or manually adjust the red, green and blue levels that are used to display white color.
<b>SD Card</b>	<b>Backup Keys</b>	Saves the colors and effects that have been assigned to the white keys. Choose a name with the plus, minus & Enter buttons. Back/Tap-sync jumps to the next set of letters, "←" deletes, ">>" stores the keys with the chosen name.
	<b>Restore Keys</b>	Copies the stored keys to the ARC2's memory.
	<b>Firmware update</b>	The ARC2 can be used to update the firmware of most Astera lamps and controllers that are equipped with a RF receiver (Antenna). Please refer to the Firmware update manual in appendix 10.5. for detailed instructions.

<b>Test Radio</b>	The <b>Test pattern Color Change</b> allows you to test the radio frequency range conveniently by walking away from a lamp just 8-16m while holding the ARC2. If the Test Radio is activated, the remote switches to minimum output power and transmits a color change, change every second. If the color change works in that range, lamps and remote are ok. You might need to move the remote around a little to avoid interference.
<b>Radio Pin:</b>	The Radio Pin makes it possible for different customers to operate their lamps at the same place without influencing other lamps. The 4-digit pin can be set to a unique value and paired with selected lamps. To activate the radio pin, choose a pin on lamps and remote control, then press PAIR WITH LAMPS. Lamps that do not have a display and buttons to choose the Radio Pin have to be put into blue mode before they can be paired with an ARC2.
<b>Factory Reset:</b>	Selecting THIS REMOTE will reset all settings including keylocks and all MEMORY programs. Resetting LAMPS will ask you to tap individual lamps to select which of the lamps in range you want to reset. For event rental companies a factory reset of the ARC2 remote should be done after each rental job to avoid misleading settings from customers.

## 8. Technical Data

<b>Environment</b>	
<i>Temperature (operation)</i>	<b>5 °C – 40 °C</b>
<i>Temperature (transport)</i>	<b>-25 °C – 55 °C (70 °C for 24h)</b>
<i>Relative Humidity</i>	<b>0 - 95%</b>
<i>Altitude</i>	<b>up to 2000m above sea level</b>
<i>Site</i>	<b>interior</b>
<i>Battery</i>	<b>2x 1,5V AA (LR6)</b>
<b>Measurements</b>	
<i>Unit Size in mm</i>	<b>L183mm x W62mm x H31mm</b>
<i>Unit Size in inch</i>	<b>L7.2" x W2.4" x H1.2"</b>
<i>Unit Weight in gram</i>	<b>160g</b>
<i>Unit Weight in pound</i>	<b>0.35lb</b>
<b>Radio Frequency</b>	
<i>RF Coverage Range</i>	<b>50m up to 300m</b>
<i>Frequency EU &amp; EFTA</i>	<b>868.000 MHz – 869.750 MHz</b>
<i>Frequency US, Canada, Australia, New Zealand</i>	<b>902MHz – 928 MHz</b>



### **WARNING**

*The user must make sure, that the national regulations allow the operation of this RF device!*

*If this is ignored, serious harm may occur!*



## 9. Troubleshooting

<b><i>Faulty condition</i></b>	<b><i>Cause</i></b>	<b><i>Troubleshooting</i></b>
Units are out of sync	Adjustment of the SPEED parameter can cause deviation between the units; also the units will drift out of sync after a few hours.	Press SEND button or change PROGRAM.
Units behave incorrectly	Due to the vast number of settings, one cannot always predict behavior of the units, if setup was already done earlier.	Do FACTORY RESET on units and/or remote control.
One/a few units don't play the correct program, even if it was set up earlier.	If a unit is powered up after the light scene was setup with the remote control, it will not work correctly.	Press SEND button on remote control to update the unit.
A unit is flashing in blue or other color all the time and not accepting any command.	It might be in BLUE MODE.	Hold down the button until the flashing stops.
One/a few units don't react on the remote control.	You might be targeting the wrong lamps	Check TARGET LAMPS and select the set you have programmed the lamps in or make sure you are sending to all 4 groups to target all lamps.
Units will go out of battery after only 6 hours of operation.	Some units last only 8 hours with COLD WHITE, if the LED POWER is set to NORMAL. For HIGH BRIGHTNESS the runtime may be shorter than 8 hours.	Adjust LED POWER and/or see manual of the unit.
The display of a unit is showing BLACKOUT, and there is no light output.	Either the unit is set to BLACKOUT mode, or DMX-FAILURE/AC FAILURE is set to BLACKOUT and one of these conditions persists.	Press I/O on remote control and set to DISABLED. Check settings of DMX-FAILURE/AC FAILURE. Maybe do FACTORY RESET.
Each time I press the tap-sync buttons the displayed colors are changing.	You have switched Random Colors on.	Enter the Editor, select USE RANDOM COLS, then select NO.

## 10. Appendix

### Appendix 1: Color Index

Color code	Color Code	Color Code	Color code	Color code
2	130	75	172	232
3	131	79	174	236
4	132	85	176	237
7	134	88	179	238
8	135	89	180	241
9	136	90	181	242
10	137	100	182	243
13	138	101	183	244
15	139	102	192	245
17	140	103	193	246
19	141	104	194	247
20	142	105	195	248
21	143	106	196	249
22	144	107	197	
24	147	108	198	
25	148	109	200	
26	151	110	201	
27	152	111	202	
29	153	113	203	
35	154	115	204	
36	156	116	205	
39	157	117	206	
46	158	118	207	
48	159	119	208	
52	161	120	212	
53	162	121	213	
58	164	122	218	
61	165	124	219	
63	166	126	223	
68	169	127	226	
71	170	128	230	

## Appendix 2: Customizable Programs

<i>Name</i>	<i>Light Effect</i>	<i>Used colors</i>
<b>ONE COLOR STATIC</b>	All pixels show the same color	C1
<b>TWO COLOR STATIC</b>	Same as <b>ONE COLOR STATIC</b> , but not all	C1 C2
<b>THREE COLOR STATIC</b>	pixels show the same color, they are	C1 C2 C3
<b>FOUR COLOR STATIC</b>	divided into 2, 3 or 4 parts.	C1 C2 C3 C4
<b>ONE COLOR FADE</b>	All pixels show the same color, but the color changes between all four <b>USER COLORS</b> .	C1 C2 C3 C4
<b>TWO COLOR FADE</b>	Same as <b>ONE COLOR FADE</b> , but not all	C1 C2 C3 C4
<b>THREE COLOR FADE</b>	pixels show the same color, they are	C1 C2 C3 C4
<b>FOUR COLOR FADE</b>	divided into 2, 3 or 4 parts.	C1 C2 C3 C4
<b>SIMPLE RUNNING</b>	All pixels have C1 color, except one, that is running over them with C2.	C1 C2
<b>DOUBLE RUNNING</b>	Same as <b>SIMPLE RUNNING</b> , but two pixels are running over the background, in opposite directions.	C1 C2
<b>TWO COL RUNNING</b>	Same as <b>DOUBLE RUNNING</b> , but the two pixels are of different color.	C1 C2 C3
<b>FLAG RUNNING</b>	A “flag” consisting of three color stripes is running over the background.	C1 C2 C3 C4
<b>DOUBLE FLAG RUNNING</b>	Same as <b>FLAG RUNNING</b> , but two flags are running in opposite directions.	C1 C2 C3 C4
<b>SPIRAL 4 COLORS</b>	The color of all pixels is changing pixel by pixel from one color to the next. If the geometry of the unit allows it, the direction is circular.	C1 C2 C3 C4
<b>SPIRAL 2 COLORS</b>	Same as <b>SPIRAL 4 COLORS</b> , but the movement starts at both and in opposite directions, and moves back after all pixels are changed.	C1 C2
<b>RAINBOW</b>	A moving rainbow is shown on the units.	none
<b>FIRE</b>	A flickering fire-like effect is displayed. C1 is the background color, randomly pixels flash and flicker with C2.	C1 C2
<b>ROTOR</b>	The rotor programs are much like the <b>FADE</b> programs, but if the units are of tower-like shape, then a clockwise running rotor can be seen.	C1 C2 C3 C4
<b>ROTOR SPLIT 2</b>	Same as <b>ROTOR</b> , but two rotors in opposite directions are running.	C1 C2 C3 C4
<b>ROTOR SPLIT 4</b>	Same as <b>ROTOR</b> , but four rotors in opposite directions are running.	C1 C2 C3 C4

### ***Appendix 3: Color Chaser for Random Modes***

RANDOM MODE[7..0]:

7..6: strobe-override mode

00: strobe not overridden

01: strobe disabled for C2, C4

10: strobe disabled for C2, C3

11: strobe disabled for C1

5..4: timeline parameters

00: at each step all colors change

01: colors change one by one

10: one step colored, next step black

11: three steps colors, one step black

3..2: color-override mode

00: colors not overridden

01: C1 is always black

10: C1 is always C1

11: C1 and C3 are always C1

1: color-wheel effect

0: color-table: 0 == color table, 1 == user colors

50: color-wheel effect, color table is used.

#### ***Appendix 4: DMX table for Effect Mode***

Channel	EFFECT MODE FIX	EFFECT MODE RGB
1	INTENSITY	
2	STROBE	
3	PROGRAM	
4	SPEED	
5	FADE	
6	DIRECTION: 0..63: FFW+LOOP 64..127: FFW 128..190: REW 191..255: REW+LOOP	
7	SIZE: defines the virtual size of the program in groups. For example if SIZE is set to 2 groups, only half of the program is shown on the unit. 0..63: 1 group 64..127: 2 groups 128..191: 3 groups 192..255: 4 groups	
8	OFFSET: if SIZE is set to >1 group, the units pixels can be shifted within the virtually larger program. Increasing the OFFSET parameter scrolls the position of the unit within the virtual large program.	
9	RESTART PROGRAM: if value is changed, the program starts again from the beginning (useful if DIRECTION is not set to loop)	
10	INDEX COLOR 1	COL 1 RED
11	INDEX COLOR 2	COL 1 GREEN
12	INDEX COLOR 3	COL 1 BLUE
13	INDEX COLOR 4	COL 2 RED
14		COL 2 GREEN
15		COL 2 BLUE
16		COL 3 RED
17		COL 3 GREEN
18		COL 3 BLUE
18		COL 4 RED
20		COL 4 GREEN
21		COL 4 BLUE

## Appendix 5: Firmware Updating Process

### Introduction

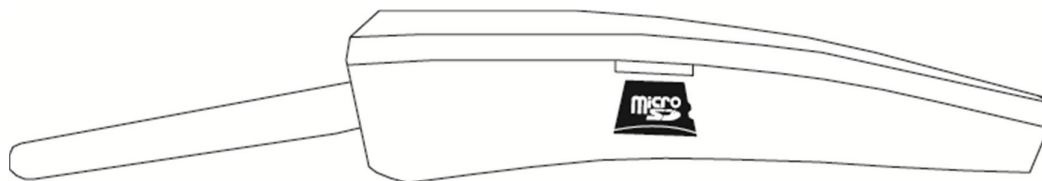
The ARC2 remote control can be used to update the firmware of most Astera lamps that are equipped with a RF receiver (Antenna) and can also update other ARC2 remotes.

### Preparation

- Download the .FRM file of the new firmware from [www.astera-led.com/downloads](http://www.astera-led.com/downloads).
- Copy it onto a micro-SD card (also known as Trans Flash card) that is formatted with FAT16 or FAT32 (most branded micro-SD cards will have this).

*There might be different hardware releases of the same lamp. If the file is not suited, the lamp will not accept it.*

- Slide the micro-SD card into the ARC2.



- Arrange the lamps you want to update and the ARC2 to a distance of 0.5-5m (2-15ft). Make sure, that no disturbances between the antennas can occur during update. If the transmission is interfered, lamps might get stuck during update. If this happens, they are unusable until the update is completed. This can be done in two ways:
  1. Do the same update again with the ARC2, not cycling power of the stuck lamps. They will pick up again at the position they lost the transmission before.
  2. Power off the lamps and start the whole update again.

## Update Process

1. Power on the ARC2 and make sure the SD-Card is inserted.
2. Choose SETUP > SD card > Firmware Update
3. Choose suitable file with + and – keys, then press Enter
4. The LCD will show “POWER ON LAMPS”. While this is shown on the ARC2, press the on/off button of all lamps you want to update. They will not power up as usual, but stay in an update mode instead (see below table to find out how this mode is shown)  
If a lamp powers up as usual, either the wireless connection is bad or the .FRM file does not match the lamp you are trying to update.
5. When all lamps are prepared, press the ENTER key on the ARC2 to start the update.
6. The ARC2’s display will show a progress bar. Wait until the update is completed, this will take 30-60 seconds.
7. If the updated worked, the lamps will power up again, and behave as usual. If a lamp does not power up, the update got stuck.  
Then either directly start the update again on the ARC2, not touching the lamps, or power off the lamps and start the whole process again.  
If you want to find out which firmware you lamp is running, take a lamp with LCD-display, hold MENU until you enter the menu, choose INFO, then FIRMWARE VERSTION.

## List of Lamps and Controllers

<b>AC2</b>	Switch unit off, than plug in the power cord while the ARC2 shows “POWER ON LAMPS”. The LCD and LEDs will stay dark until the update is completed.
<b>AL5</b>	
<b>AL6</b>	
<b>AL7-L</b>	
<b>ART3</b>	
<b>AL1</b>	Power up normally with the power button while the ARC2 shows “POWER ON LAMPS”. The power/charging LED will indicate that the update is in progress. Or the LCD will show information about the update process.
<b>AL3</b>	
<b>AL6 V2</b>	
<b>AL7-W</b>	
<b>AL9</b>	
<b>ARC2</b>	Insert batteries into an ARC2 while another ARC2 shows “SENDING INIT”. A flashing LCD backlight indicates that the update is in progress.

## 11. Disposal

Follow local ordinances and/or regulations for disposal!



### ***PACKAGING:***

The unit is shipped in protective packaging.  
This packaging can be recycled!



### ***UNIT:***

Don't throw the unit into the garbage at the end of its lifetime.  
Make sure to dispose is according to your local ordinances and/or regulations, to avoid polluting the environment!



### ***BATTERIES:***

Don't throw empty batteries into the garbage!

Bring them to a collecting point for used batteries!



This instruction manual is part of the device and persons operating the device must have access to it at any time. Safety precautions mentioned in the instruction manual have to be observed. If the device is being sold, this instruction manual has to be included.

#### **Translations**

If the device is being sold, this instruction manual has to be translated into the national language of the destination country. If discrepancies occur in the translated text, the original instruction manual has to be used to solve them and the manufacturer has to be contacted.

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