

Radiance Tech Tip 12

IR Command Interface

Usage

The IR interface can be used to control the operation of the Radiance. The Lumagen remote, a programmable remote, or a control system can generate the IR commands.

Description of IR Code

Each of the buttons on the remote transmits a message that consists of 13 short bursts of Infrared (IR) energy. Every IR energy burst is identical in frequency and duration. Every IR burst consists of 16 cycles of IR energy at a carrier frequency of 38kHz. The duration of every IR burst is 400 us. It is the gap between these IR bursts that contains the information. There are three different gap lengths.

- Short gaps are 2.5 ms between IR bursts.
- Long gaps are 5.0 ms between IR bursts.
- The inter-message gap is 11.0 ms long.
- A logic 0 consists of a 400 us IR burst followed by a short gap.
- A logic 1 consists of a 400 us IR burst followed by a long gap.
- The first 4 gaps are the preamble, consisting of two short gaps (logic 0), a long gap (logic 1), then a short gap (logic 0).
- This is followed by a parity bit to help ensure data integrity. The parity bit will be a long gap (logic 1) when there is an odd number of long gaps (logic 1).
- A short gap (logic 0) follows the parity bit.
- The next 7 gaps contain the button information, arranged as 4 bits for row 0-15 and 2 bits for column 1-4. After the final information gap there is an IR burst followed by a long (11.0 ms) inter-message gap.

For example, pressing the key in the fourth row, third column will produce the code: 0010 00 0011 10. Preamble 0010, parity bit 0, row 0011, column 10. This is the IR code for the number "3".

IR Command List

Remote Command	IR-binary	IR-HEX	Description
ON	0010 00 0001 11	207	Power on
STBY	0010 00 0010 11	20B	Power to standby
MENU	0010 00 0111 11	21F	Activate menu
EXIT	0010 10 1001 11	2A7	Exit. Often acts as a cancel key
HELP	0010 10 0000 11	283	Display help for current menu selection
CLR	0010 00 1001 10	226	Force menu off (i.e. can use to assure menu is off for input selection)
INPUT	0010 10 1000 11	2A8	Choose input
ZONE	0010 10 0111 10	29E	Output zone select
ALT	0010 00 0111 00	21C	Alternate
PREV	0010 10 0110 11	29B	Display previous input
PIP-OFF	0010 10 1010 00	2A8	PIP off

Remote Command	IR-binary	IR-HEX	Description
PIP-SEL	0010 00 1010 01	229	PIP select
PIP-SWAP	0010 00 1010 10	22A	PIP swap
PIP-MODE	0010 10 1010 11	2AB	PIP mode
OK	0010 10 1000 01	2A1	Accept command
<	0010 00 1000 00	220	Left arrow
>	0010 10 1000 10	2A2	Right arrow
V	0010 00 1001 01	225	Down arrow
^	0010 10 0111 01	29D	Up arrow
0	0010 00 0101 01	215	Enter the digit 0
1	0010 10 0011 00	28C	Enter the digit 1
2	0010 00 0011 01	20D	Enter the digit 2
3	0010 00 0011 10	20E	Enter the digit 3
4	0010 10 0011 11	28F	Enter the digit 4
5	0010 00 0100 00	210	Enter the digit 5
6	0010 10 0100 01	291	Enter the digit 6
7	0010 10 0100 10	292	Enter the digit 7
8	0010 00 0100 11	213	Enter the digit 8
9	0010 10 0101 00	294	Enter the digit 9
NLS	0010 10 0001 10	286	Non Linear Scale input to horizontally fill output
4:3	0010 00 0010 00	208	Input is 4:3 format. Use previous zoom setting.
4:3NZ	0010 10 1111 00	2BC	Input is 4:3 format. No zoom.
LBOX	0010 10 0010 01	289	Input is 4:3 letterbox format. Use previous zoom setting.
LBOXNZ	0010 00 1111 01	23D	Input is 4:3 letterbox format. No zoom
16:9	0010 10 0010 10	28A	Enhanced for 16:9 televisions format. Use previous zoom setting.
16:9NZ	0010 00 1111 10	23E	Enhanced for 16:9 televisions format. No zoom.
1.85	0010 00 0001 00	204	Input is 1.85 format. Use previous zoom setting.
1.85NZ	0010 10 1111 11	2BF	Input is 1.85 format. No zoom.
2.35	0010 10 0001 01	285	Input is 2.35 format. Use previous zoom setting.
MEMA	0010 00 0101 10	216	Select MEMA
MEMB	0010 10 0101 11	297	Select MEMB
MEMC	0010 10 0110 00	298	Select MEMC
MEMD	0010 00 0110 01	219	Select MEMD
+10	0010 00 0110 10	21A	Add 10 to the next digit entered
FREEZE	0010 10 1001 00	2A4	Freeze-frame. Any other character resumes
YPRPB	0010 00 1011 00	22C	Output type is HD color-space YPbPr (component)
RGBHV	0010 10 1011 01	2AD	Output type is RGBHV. <enter> completes command
RGBS	0010 10 1011 10	2AE	Output type is RGBS. <enter> completes command
RGsB	0010 00 1011 11	22F	Output type is RGsB. <enter> completes command
480P	0010 10 1100 00	2B0	Select Vertical Resolution = 480p
540P	0010 00 1100 01	231	Select Vertical Resolution = 540p
600P	0010 00 1100 10	232	Select Vertical Resolution = 600p
720P	0010 10 1100 11	2B3	Select Vertical Resolution = 720p
768P	0010 00 1101 00	234	Select Vertical Resolution = 768p
840P	0010 10 1101 01	2B5	Select Vertical Resolution = 840p
1080P	0010 10 1101 10	2B6	Select Vertical Resolution = 1080p
1080I	0010 00 1101 11	237	Select Vertical Resolution = 1080I
ASPECT	0010 00 1110 11	23B	Set Output aspect ratio