

RL4 relay board.

INTRODUCTION:

The RL4 is relay output board that is used together with the SR4 audio player or MV720p high definition video player. The RL4 has 4 relays that can be triggered from the SR4 in sync with the file being played.

To trigger the relays, you have to create a xxx.tmr text file where xxx is also the name of the audio/video file. This text file is stored in the CF card of the SR4 together with the audio/video files. When playing an Audio/Video file, the SR4 will search for a xxx.tmr file that has the same name as the audio/video (xxx.mp3 or xxx.vob) file to be played. If the xxx.tmr file exists, then it will play the file and turn on/off the relays. The RL4 is connected to the SR4p through the RS485 port. The RL4 has an IN/OUT port. The IN is for connection into a SR4 OR from another RL4 board. The out port is for connection into another RL4 board. You can connect up to 4 RL4 board.

RL4 AT A GLANCE:

- RL4 board has 4 relays with 1 Amp contact output.
- Each relay has a N.O (Normally open, default) and N.C (Normally open) contact output, adjustable using jumpers inside.
- SR4 audio player can run up to 4 RL4 boards.
- To run the relays, you have to create a xxx.tmr that has the same name as the audio/video file.
- Do not loop a xxx.tmr file. Instead of looping a file, create a “chain loop” statement in the playlist or run a short :\”dummy” file before returning to play the loop file again.



RJ12 CABLE:

Use RJ12 cable to connect the SR4 into the first RL4 board. The RL4 does not require power supply. The power (to turn on the relays) comes from the RJ12 cable/ RS485 port. **The RJ12 cable is a 6 conductor (wire), 2 station telephone OR Modem cable. This cable has 6 wires (NOT 4 wires) with 2 telephone plugs, one on each end. The RJ12 cable is a crossed wire cable.** This means that one of the telephone plug is a reversed image of the other telephone plug. Pin 1 on one of the plug is pin 6 on the other plug. To test whether the wires are crossed, do the following: Place each plug facing each other and look at the color of the wires. If the colors of the wires match, then the wires are crossed. This 2 station telephone/Modem cable is available from Wal_Mart, Radio Shack etc.

HOW TO SET THE RELAY OUTPUT:

Each relay output can be set to NO (normally open) or NC (normally closed). The factory setting is NO. This means that while idling, the relay contacts are open. When the relay is turn ON, the contacts are closed.

Each relay has a jumper. Remove the top metal cover and look for JP3, Jp4, JP5 and JP6 jumpers. JP3 controls the output of Relay 1, JP4 controls the output of relay 2 etc.

When the jumper is shorted, the relay output is NO. If the shorting bar is removed, the relay output is NC.

USING 2 OR MORE RL4 BOARDS:

You can connect up to 4 RL4 boards into a single SR4p. Using the RJ12 cable, connect one end into the SR4 and the other end into the IN port of the RL4.

To connect into the second RL4 board, use the RJ12 to connect the OUT port of the first RL4 board into the IN port of the second RL4 board.

To connect into the third RL4 board, use the RJ12 to connect the OUT port of the second RL4 board into the IN port of the third RL4 board.

To connect into the fourth RL4 board, use the RJ12 to connect the OUT port of the third RL4 board into the IN port of the fourth RL4 board.

RL4 BOARD ADDRESS:

Each board can be set for a board address 1,2,3 OR 4. To set the address, remove the top cover. Locate jumpers JP1 and JP2 behind LED's D12 and D13.

If JP1 & 2 are OFF (no jumper), the board address is 1.

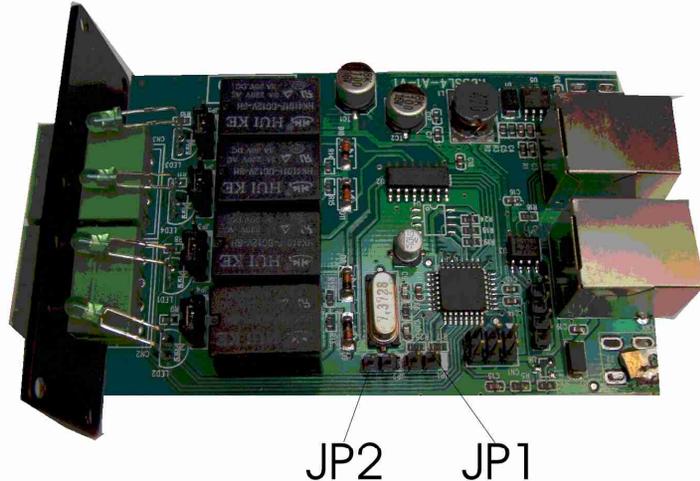
If JP1 is ON (shorted) & JP2 is OFF, board address is 2.

If JP1 is OFF and JP2 is ON, board address is 3.

If JP1 & JP2 are all ON (shorted), board address is 4.

After powering up, one of the LED will be on to indicate the board address.

RL4 jumpers



JP1 and JP2 OFF Board #0 (relays 1-4)
JP1 on ,, ,, Board #1 (relays 5-8)
JP2 on ,, ,, Board #2 (relays 9-12)
JP1 and JP2 on ,, ,, Board #3 (relays 13-16)

HOW TO CREATE XXX.TMR FILE:

Use your NOTEPAD only and follow the example below.

IMPORTANT:

Save this file as: ALL FILES and file type is ANSI.

HOW TO NAME XXX.TMR FILE:

Name this file exactly the same as the audio/video file that you want to play.

Example:

If you want the tmr file to play while playing Bird.mp3, then name this file Bird.tmr.

If you want the tmr file to play while playing Dog.vob, then name this file Dog.tmr.

NOTE: Save this file as ALL FILES, file type is ANSI and then type in the name complete with the extension: Bird.tmr or Dog.tmr etc.

WHERE TO SAVE THE XXX.TMR FILE:

After saving this file on your PC, copy it into the CF card. You can copy this xxx.tmr file either in the root directory of CF card (outside the file folder) OR inside the file folder.

CONTENT OF A TMR FILE:

A tmr file is a text file, ANSI type.

Each line of the tmr file consists 6 numbers, equal sign (=) and then 4 groups of 4 digit numbers either Zero or One. The first 6 digit represents the time in SECOND. The 4 digit number (total 16 digits) represents the 4X4 relays where Zero is for Relay OFF and ONE is for Relay ON.

EXAMPLE:

000215=0010-0000-0000-0000 (16 digit)

000215 is the time of play all in second, in this case 21.5 seconds.

1 indicates relay is ON (1) or 0 indicates Relay is OFF (0).

HOW TO TURN ON/OFF THE RELAYS:

0000 (either 0 or 1) is the state of the 4 relays. When 0 relay is OFF. If 1 relay is ON. The tmr file **MUST HAVE** 4 groups of 0000 or 1 for a total of 16 digits.

The first 0(or 1) is the state of the first relay, The second 0(or 1) is the state of the second relay, The third 0 (or 1) is the state of the third relay and the fourth 0 (or 1) is the state of the fourth relay. The tmr file must have the state of 4 groups of relays (RL4, total 16 relays), regardless whether you are using only 1,2,3 or all RL4 units.

If 1, relay is ON.

If 0, relay is off.

Example:

0100-0000-0000-0000.... In this case RL4 board#1, relay 2 is ON.

0011-0000-0000-0000 ... In this case RL4 board#1, relay 3 and 4 are ON.

EXAMPLE:

000000=0100-0000-0000-0000 // at start of file, turn output 1 on.

000210=1100 -0000-000-0000 // at 21 sec, output 1 and 2 on. Other output off.

001100=0011-0000-0000-0000 // at 110 sec, output 3 and 4 on.

012100=0000-0000-0000-0000 // at 1210 sec turn all output OFF.

HOW TO TURN ON/OFF RELAYS ON BOARD 2,3,AND 4:

To turn ON/OFF relays on boards 2,3 and 4, add a dash sign follows by 0000 (or 1).

EXAMPLE:

000000=0100-0000-0000-0000 // at start of file, turn output 1/board 1 on.

000210=0000-0100-0000-0000 // at 21 sec, output 2/board 2 on. Other output off.

001100=0000-0000-0011-0000 // at 110 sec, output 3 and 4 / board 3 on.

012100=0000-0000-0000-1111 // at 1210 sec turn all output ON/Board 4.

Special modes:

At the end of each xxxx you can add special mode codes as follows:

Mode A = Output on/off every 1 second.

Mode B = Output on/off every 0.5 second.

EXAMPLE:

000000=0100 A-0000-0000-0000 // at start of file, turn output 1 on/off every 1 second..

001100=0011B-0000-0000-0000 // at 110 sec, output 3 and 4 on/off every 0.5 sec.

And here is an example of a CF card content:

F:\ (this is the CF card)
Cat.mp3
 Playlist.txt
 TEST (this is a file folder)
Content of **TEST** file folder:
Bird.mp3
Camel.mp3
 Bird.tmr

Content of Bird.tmr

000000=0100-0000-0000-0000 // at start of file, turn output 1 on.
000210=1100-0000-0000-0000 // at 21 sec, output 1 and 2 on. Other output off.
001100=0011-0000-0000-0000 // at 110 sec, output 3 and 4 on. Other output off.
001800=0000 -0000-0000-0000 // at 180 sec (3 minutes), turn all output off.

And here is an example of playlist.txt:

playlist.txt:
ADDRESS=08
VOLUME=06
V-ADJUST=04
PLAYMODE=SINGLE
VIDEO=VGA
010099=Bird.mp3

DO NOT LOOP A XXX.TMR FILE:

Do not loop a tmr file. Looping a tmr file will cause timing error. Instead of looping, create either a “chain loop” statement in the playlist OR run a short “dummy” mp3 file . The purpose of creating the above is to reset the tmr file every time before playing the file.

Example of looping a file using push button:

010098=bird.mp3

bird.tmr is also in the CF card.

If input 1 is triggered, bird.mp3 together with Bird.tmr will loop.

This statement will loop bird.mp3 and bird.tmr runs together with it. Timing error will occur after running the bird.mp3 for several times. To minimize this timing error, create a copy of the same mp3 and tmr files and use the following “chain loop” statement:

Example of the correction:

010020=bird1.mp3 (input 1 of SR4 plays bird1.mp3).

200001=bird2.mp3 (input 20 plays bird2.mp3, then return to play input 1 again).

bird1.mp3 and bird2.mp3 are actually the same mp3 file (content).

Bird1.tmr

Bird2.tmr

bird1.tmr and bird2.tmr are actually the same tmr file (content).

Explanation of the correction:

After finish playing bird1.mp3 and bird1.tmr, SR4 will play bird2.mp3 and at the same time reset the tmr in it's memory and play bird2.tmr. After finish playing

Bird2.mp3, SR4 will return to play Bird1.mp3 again creating a "chain loop".

Bird1.mp3 and bird2.mp3 are actually the same file but with different name.

It is the same with bird1.tmr and bird2.tmr.

Example of looping a file in the root:

Bird.mp3 (this file is in the root).

Bird.tmr (this is the tmr file).

Correct the looping file above as follows:

Bird.mp3 (this file is in the root).

Bird.tmr (this is the tmr file).

Silent05.mp3 (this is a new file, 0.5 sec silent).

Silent05.tmr (content of this file is 000000=0000-0000-0000-0000).

Silent05.tmr content is all zeros.

Explanation:

After finish playing Bird.mp3, SR4 will play the 0.5 second silent. At this time the tmr file will reset. SR4 will then play Bird.mp3 again together with the bird.tmr file.

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