

B L U E   R A M

B S R   C O N T R O L L E R

O W N E R ' S   M A N U A L

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INTRODUCTION. Your Blue Ram BSR controller is an ultrasonic interface between your Blue Ram and the BSR X-10 home controller system. This combination allows you to control lamps, overhead lights, and appliances under direction from your Bally ARCADE. Up to sixteen "devices" may be controlled and may be anywhere on the common power line. See the BSR X-10 manual for details of the BSR X-10 system operation. Included in this controller interface are an ultrasonic transmitter, a machine-code driver program, and a demonstration BASIC scheduler program. The scheduler allows a timetable to be defined and sequentially executed to control all sixteen devices, if desired, based on a predefined schedule. The driver program provides the means to include device control in games or other programs you may wish to write. A clock program is also included in support of timed events.

INSTALLATION. Installation of the BSR X-10 system should be in accordance with the BSR X-10 manual. Ensure that your BSR X-10 command console is the ultrasonic type. This interface will only control the ultrasonic type of command console.

Open the ZIF socket on the Blue Ram and insert the prongs of the ultrasonic transmitter into the #13 and #16 pins of the ZIF socket and lock the socket handle down. (Remember that the pins count counter-clockwise from the handle - pin 1) Note that the prong marked with a red dot should be in pin #13. Locate the BSR command console in a convenient place within about 15 feet of the Bally and at about the same height. Aim the front of the BSR command console at the transmitter and also aim the transmitter at the command console. Note that the transmitter will turn in its socket 360° for easy aiming. This completes the installation procedure. Load the program tape in the usual way via the :INPUT statement and try the demonstration program.

DEMONSTRATION PROGRAM. The demonstration scheduler program can be used in two ways: 1) as a demonstration of ways to use the driver programs, and 2) as an actual scheduler for sequencing your lights to simulate household activity when you are away. Operation of the demonstration program is self prompting. It begins with the function menu. Select 1 GO to make timetable entries. Any non-numeric key will return to the function menu. Select 2 GO to display a "picture" of the timetable. Like a bar graph, a bar will indicate the "on" time for each particular device. The height of the bar corresponds to the level the device will be activated to. Devices may be turned on or off again and again to ensure that someone does not override the system for too long. For example, the front porch light can be turned off (00) at midnight (0000) and every hour after that. That way, if it were manually turned on at 1:15 am the system would ensure it was off at 2:am (0200). Remember that only lights and lamps may use the dimmer levels (01 through 30); appliances must be either full on (31) or full off (00). You may program your bedroom lights to dim gradually, say in 2 step intervals every 10 minutes, reversing the process in the morning. Note that the display is divided into two pages. Failing to select the alternate page returns to the function menu.

*Q(192)=0; A=24576; FOR N=A TO 24877; % (N)=KP; NEXT N;  
IF P #85 PRINT; TV=69; TV=82; TV=82; TV=79; TV=82; TV=13*

*Q(64)=0  
10 → 740*

DEMONSTRATION PROGRAM CONT'D. Select 3 GO to begin the timer. Here you have the opportunity to set the internal clock if it is not currently on the right time. The current time will continue to display along with the status (levels) currently in effect for each device. A blank status indicates that no entry in the timetable has yet been encountered for that device. Pressing GO will return to the function menu, leaving the internal clock running.

MACHINE-CODE DRIVERS. Machine-code drivers are included for two types of device control and for the internal clock. Operation is as follows:

1. Enable internal clock\* (CALL 24721) - starts the internal clock. While the clock is running, Z will automatically be incremented every 60th of a second; S will increment every second; M every minute; and H every hour, resetting to 0 once a day. Do not use these variables for other purposes or strange results may occur. You may, however, read them freely.

2. Micro device control (C=n;CALL 24576) - sends a single command to the command console. The code for the command is set into variable C prior to the CALL. C=1 through 16 for addressing the corresponding device. The following codes equate to the other possible commands:

17 - ALL OFF	25 - ALL LIGHTS ON
19 - DIM	27 - BRIGHT
21 - ON	29 - OFF

Each code must be sent one extra time to allow the automatic gain control (AGC) in the BSR command console to stabilize. EXAMPLES:

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10 C=6;CALL24576;CALL24576      sends device address 6
20 C=21;CALL24576;CALL24576    an "ON" command.
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10 GOTO 100
20 FOR X=0 TO N;CALL24576;NEXT X;RETURN
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```
100 C=12;N=1;GOSUB 20          sends device address 12
110 C=21;GOSUB 20              an "ON" command
120 C=19;N=16;GOSUB 20         followed by 16 "DIM"
                                commands (half way).
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3. Macro device control (A=last;B=this;C=devadr;CALL 24781) - sends a compound command to the command console. This driver figures out the command sequence for the desired results, given the current (last) level of the device in variable A, the new (this) level in variable B, and the device address in variable C. EXAMPLE:

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10 A=32;B=31;C=14;CALL24781    changes device 14 from
                                "OFF" to "ON".
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Levels can vary from 1 (dimmiest) to 31 (brightest) with 32 being OFF. This driver handles the extra command requirement internally such that a single CALL will perform a complete operation.

\*NOTE: The internal clock is derived from the Bally's vertical sync circuit and is only accurate to within about 1 minute per day depending on the component variances within your particular Bally. A more accurate clock will be developed if there is sufficient demand.

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10 FOR N=0 TO 15; @(N)=0; NEXT N; NT=0; GOTO 90
20 TV=32; N=0; FOR F=1 TO C; K=KP; IF K>47 IF K<58 TV=K; N=Nb10+(K-48); NEXT F; RETURN
25 IF K#31 N=-1; RETURN
30 TV=K; IF F#1 F=F-2; N=Nc10; BOX CX,CY,6,8,2; NEXT F
35 GOTO 20
40 PRINT "ILLEGAL ",; RETURN
50 CX=-22; CY=20; PRINT #1, Hc10, RM, ":", Mc10, RM, ":", Sc10, RM,; Q=S; RETURN
60 T=(Hb6+Mc10)b16+Y+25088; RETURN
70 T=Tc100; R=(T>23)+(RM>59); IF RGOSUB 40; PRINT "TIME"
80 RETURN
90 IF A=24576 CALL 24813
100 CLEAR ; PRINT "      BLUE RAM - BSR"; PRINT "      CONTROLLER"; PRINT
110 PRINT "  1 - ENTER TIMETABLE"; PRINT "  2 - DISPLAY TIMETABLE"; PRINT "  3 -
SET CLOCK / RUN "; PRINT
120 INPUT "  SELECT FUNCTION " F; IF (F<1)+(F>3) GOTO 100
130 CLEAR ; GOTO 200bF
200 PRINT "ENTER TIME (0000 TO 2350 TO THE NEAREST 10 MINS),  DEVICE # (01 TO
16), AND LEVEL (00 TO 31)"; PRINT
210 PRINT "TIME",; C=4; GOSUB 20; IF N<0 GOTO 100
220 T=N; PRINT "  DEV#",; C=2; GOSUB 20; D=N; PRINT "  LVL",; GOSUB 20; L=N; PRINT ; GOS
UB 70; IF RGOTO 200
230 X=(Tb6+RMc10)b16+D+25087; IF (D<1)+(D>16) GOSUB 40; PRINT "DEVICE #"; GOTO 200
240 IF (L<0)+(L>31) GOSUB 40; PRINT "LEVEL"; GOTO 200
250 L=L+32b(L=0); &(192)=0; %(X)=%(X)c256b256+L; &(64)=0; GOTO 210
400 P=1
410 FOR X=0 TO 23; FOR Y=0 TO 1; CX=Xb6-64; CY=40-Yb8; N=Xc10; TV=48+Nb(Y=0)+RmbY; NEXT
Y; NEXT X
420 FOR Y=(P-1)b8 TO Pb8-1; CX=-77; CY=CY-8; PRINT #2, Y+1,; B=Y+25088; A=B; L=32
430 C=0; CALL 24755
440 W=(B-A)c16+(B=A)
450 E=Lb(L#32)c6+1; X=(A-25088)c16-67+Wc2; IF L#32 BOX X,CY-3+Ec2,W,E,3
460 IF L=CB0X X+Wc2+RM-(A=B),CY,1,7,3
470 IF B<27392 A=B; B=B+16; L=C; GOTO 430
480 FOR X=-68 TO 76 STEP 6; BOX X,CY+4,1,1,3; NEXT X; NEXT Y
490 CY=-40; G=(P=1)+1; PRINT #2, "ENTER",G, " FOR PAGE",G,; K=KP-48; IF K>0 IF K<3P=K;
CLEAR ; GOTO 410
500 GOTO 100
600 GOSUB 50; PRINT ; CY=-16; PRINT " THIS IS THE CURRENT TIME. ENTER CORRECT TIME
OR GO.      (0000 TO 2359)"
610 C=4; CX=-17; GOSUB 20; IF N<0 GOTO 640
620 T=N; GOSUB 70; IF RCLEAR ; GOTO 600
630 Z=0; S=0; M=RM; H=T
640 : RETURN ; NT=0; CALL 24721; CLEAR ; GOSUB 50; CX=-45; CY=-4; PRINT "CURRENT SETTING
S"; IF N<0 GOTO 680
650 FOR Y=0 TO 15; B=Y+25088; GOSUB 60
660 CALL 24755; IF B<T@(Y)=C; B=B+16; GOTO 660
670 NEXT Y
680 FOR Y=0 TO 15; CX=Yc4b38-70; CY=-16-Rmb8; PRINT #2, Y+1,; IF @(Y) PRINT #3, @(Y)b(@
(Y)#32),
690 NEXT Y
700 IF S#0 GOSUB 50
710 IF &(23) GOTO 100
720 T=Mc10; IF (RM=9)+(C<0) C=RM-9; GOTO 700
730 FOR Y=0 TO 15; GOSUB 60; L=%(T)c256; IF RM GOTO 750
740 NEXT Y; C=-1; GOTO 680
750 A=@(Y); B=RM; @(Y)=B; IF (A#B)+(B>30) C=Y+1; CALL 24781
760 GOTO 740

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