

The following is the specification and implementation details of the B&K Components Device Interface Protocol, BKC-DIP. BKC-DIP is an ASCII text based serial protocol. The electrical specification is RS232, thus B&K Components' devices may be controlled by standard "COM" ports or similar serial devices. Through the use of Receive and Transmit IDs, multiple B&K Components units may be controlled on a common serial bus. The following is an example of the BKC-DIP RS232 instruction structure.

```

BKC-DIP checksum (optional) .....
BKC-DIP checksum delimiter ..... |
BKC-DIP delimiter character ..... | |
BKC-DIP delimiter character ..... | | |
                                     | | | |
Indicates the start of instruction---->(id,cc,ss;1234)
                                     | | | |
B&K receive ID .....| | | |
BKC-DIP command .....| | | |
BKC-DIP command specifier .....| | | |
BKC-DIP end of instruction character .....| | | |
    
```

Notes:

I have elected to NOT use checksums (no "checksum data" after a semicolon). The following examples are used in conjunction with a B&K product that has the receive ID and transmit ID set to 0.

Examples are only valid for the product and zone specified, see specific product appendix for comparability or correct system or preset parameter details.

 IR (InfraRed)

The following set of strings are used to discreetly select sources. These strings may be used to emulate the functionality of the IR functions of a B&K AV System Remote Controller

```

BKC-DIP source parameter (select CD) .....
BKC-DIP zone identifier (1) ..... |
BKC-DIP IR command instruction ..... | |
BKC-DIP set command instruction ..... | | |
B&K product with a receive ID set to .... | | | |
                                     | | | | |
                                     (0,S,I,1=F0;)
    
```

Copy the below strings to select a source (product dependent).

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

```

TUNER    [TUNER] (0,S,I,1=70;)
AM       [AM]    (0,S,I,1=6E;)
FM       [FM]    (0,S,I,1=71;)

IN_1     [V1]    (0,S,I,1=A0;)
IN_2     [V2]    (0,S,I,1=90;)
IN_3     [TV/V3] (0,S,I,1=60;)
IN_4     [DVD/LD] (0,S,I,1=B0;)
IN_5     [CD]    (0,S,I,1=F0;)
IN_6     [SAT]   (0,S,I,1=52;)
    
```

```

IN_7    [TAPE]  (0,S,I,1=D0;)
IN_8    [V4]    (0,S,I,1=E0;)
IN_9    [V5]    (0,S,I,1=76;)

```

```

*****
Currently not supported by any product, however
B&K intends to add IR support for the following sources:
*****

```

```

IN_10   [V6]    (0,S,I,1=E9;)
IN_11   [V7]    (0,S,I,1=EA;)
IN_12   [V8]    (0,S,I,1=EB;)
IN_13   [V9]    (0,S,I,1=ED;)
IN_14   [V10]   (0,S,I,1=EE;)
IN_15   [V11]   (0,S,I,1=EF;)
IN_16   [V12]   (0,S,I,1=F5;)
IN_17   [V13]   (0,S,I,1=F6;)
IN_18   [V14]   (0,S,I,1=F7;)

```

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

```

THX      -   (0,S,I,1=51;)
Surround -   (0,S,I,1=53;)
Stereo   -   (0,S,I,1=47;)
Mono     -   (0,S,I,1=59;)

```

The following set of strings are used to toggle the zone power state. These strings are similar to the IR functions of the B&K AV System Remote Controller AV7.1.

```

BKC-DIP power state parameter (toggle) .....
BKC-DIP zone identifier (1) ..... |
BKC-DIP IR command instruction ..... | |
BKC-DIP set command instruction ..... | | |
B&K product with a receive ID set to .... | | | |
                                     | | | | |
                                     (0,S,I,1=45;)

```

Copy the below string to toggle "Zone 1" power state on/off.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

```

Power On/Off Toggle -   (0,S,I,1=45;)

```

Copy the below strings for "Zone 1" discrete Power On and Off commands.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

```

Power Off      -   (0,S,I,1=80;)
Power On       -   (0,S,I,1=40;)

```

The following set of strings are used to increment the zone volume. These strings are similar to the IR functions of the B&K AV System Remote Controller AV7.1.

```

BKC-DIP volume increment/decrement parameter ....
BKC-DIP zone identifier (1) ..... |
BKC-DIP IR command instruction ..... | |
BKC-DIP set command instruction ..... | | |
B&K product with a receive ID set to .... | | | |
                                     | | | | |
                                     (0,S,I,1=24;)

```

Copy the below strings to increase or decrease the zone master volume.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Increase - (0,S,I,1=24;)
Decrease - (0,S,I,1=C4;)

EXECUTIVE

The following set of strings are the eXecutive commands to discreetly select presets. These strings differ from using the B&K AV System Remote Controller AV7.1 in that they are a direct way of accessing system presets in one step.

BKC-DIP preset identifier (0)
BKC-DIP zone identifier (1) |
BKC-DIP recall preset instruction | |
BKC-DIP eXecutive command instruction | | |
B&K product with a receive ID set to ... | | | |
(0,X,0,1=0;)

Copy the below strings to recall presets.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Preset 0 - (0,X,0,1=0;)
Preset 1 - (0,X,0,1=1;)
Preset 2 - (0,X,0,1=2;)
.
.
.
Preset 39 - (0,X,0,1=39;)

The following set of strings are the eXecutive commands to discreetly turn the power on/off for a given zone.

BKC-DIP power state identifier (Off)
BKC-DIP zone identifier (1) |
BKC-DIP zone power instruction | |
BKC-DIP eXecutive command instruction | | |
B&K product with a receive ID set to ... | | | |
(0,X,2,1=0;)

Copy the below strings to control zone power state.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Zone 1 Off - (0,X,2,1=0;)
Zone 1 On - (0,X,2,1=1;)
Zone 2 Off - (0,X,2,2=0;)
Zone 2 On - (0,X,2,2=1;)

DISPLAY

The following set of strings are the display commands to send text messages to the Vacuum Fluorescent Display "VFP".

BKC-DIP literal text string
BKC-DIP y-axis identifier |
BKC-DIP x-axis identifier | |

```

BKC-DIP time identifier ..... | | |
BKC-DIP VFP instruction ..... | | |
BKC-DIP display command instruction ..... | | |
B&K product with a receive ID set to .... | | |
                                         | | |
                                         (0,D,F,T64,X0,Y0,"TEXT");

```

Copy the below string to display text on the Vacuum Fluorescent Display.
NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

```
(0,D,F,T64,X0,Y0,"BK Components"); - T64 = 64h * 100ms (10 Seconds)
```

VFP Result:

```

-----
|B|K| |C|O|M|P|O|N|E|N|T|S| | | |<-----16 Character VFP display
-----

```

The following set of strings are the display commands to send text messages to the OSD on screen display "OSD".

```

BKC-DIP literal text string .....
BKC-DIP y-axis identifier ..... |
BKC-DIP x-axis identifier ..... |
BKC-DIP display color ..... | |
BKC-DIP time identifier ..... | | |
BKC-DIP VFP instruction ..... | | |
BKC-DIP display command instruction ..... | | |
B&K product with a receive ID set to .... | | |
                                         | | |
                                         (0,D,O,T64,M0,X0,Y0,"TEXT");

```

Copy the below strings to display text on the On Screen Display.
NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

```
(0,D,O,T0,M0,X07,Y04,"B&K COMPONENTS",X6,Y05,"CUSTOM INSTALL");
```

OSD Result:

```

Column (Hex)
R 000000000000000001111111111111
o 0123456789ABCDEF0123456789AB
w -----
0|
1|
2|
3|
4|      B&K COMPONENTS
5|      CUSTOM INSTALL
6|
7|
8|
9|
A|

```

Copy the below strings to display text on the On Screen Display.

```

(0,D,O,T0,M0,,X00,Y00,"XXXXXXXXXXXX XXX XXX"
,X00,Y01,"XXXXXXXXXXXX XXX XXX XXX",X00,Y02,"XXX XXX XXX"
,X00,Y03,"XXX XXX XXX XXX",X00,Y04,"XXXXXXXXXXXX XXX XXX"
,X00,Y05,"XXXXXXXXXXXX XXXXXXXXXX",X00,Y06,"XXX XXXXXXXXXX"
,X00,Y07,"XXX XXX XXX XXX",X00,Y08,"XXX XXX XXXX"

```

,X00,Y09,"XXXXXXXXXXXXX XXX XXXX ",X00,Y0A,"XXXXXXXXXXXXX XXX XXXX";)

OSD Result:

```

Column (Hex)
R 000000000000000001111111111111
o 0123456789ABCDEF0123456789AB
w -----
0|XXXXXXXXXXXXX XXX XXX
1|XXXXXXXXXXXXX XXX XXX
2|XXX XXX XXX XXX
3|XXX XXX XXX XXX
4|XXXXXXXXXXXXX XXX XXX
5|XXXXXXXXXXXXX XXXXXXXX
6|XXX XXX XXXXXXXX
7|XXX XXX XXX XXXX
8|XXX XXX XXX XXXX
9|XXXXXXXXXXXXX XXX XXXX
A|XXXXXXXXXXXXX XXX XXXX

```

GET

The following set of strings are the GET display commands to acquire text messages from the Vacuum Fluorescent Display "VFP".

```

BKC-DIP VFP identifier .....
BKC-DIP display instruction ..... |
BKC-DIP get display command instruction ... | |
B&K product with a receive ID set to .... | | |
                                     | | | |
                                     (0,G,D,F;)

```

Copy the below string to acquire the contents of the Vacuum Fluorescent Display.

(0,G,D,F;)

Results:

(0,R,D,F,0="FM 102.5 Stereo 7 ",80=1;0983)

Note: This can be useful when using a touch panel. You can query the unit and in return display current input and surround mode status on the touch panel display.

The following set of strings are the GET display commands to acquire text messages from the OSD on screen display "OSD".

```

BKC-DIP display location identifier .....
BKC-DIP display instruction ..... |
BKC-DIP get display command instruction ... | |
B&K product with a receive ID set to .... | | |
                                     | | | |
                                     (0,G,D,O;)

```

Copy the below string to acquire the contents of the On Screen Display.

(0,G,D,O;)

SYSTEM PARAMETERS

Zone 1 of a Ref 50 or AVR 507
(not valid for CT series product).

The following set of strings are the set preset parameters commands to set system preset parameters. The "FF" refers to the current state of the unit, not to any specific preset.

```
BKC-DIP preset parameter identifier state .....  
BKC-DIP current input parameter identifier ..... |  
BKC-DIP current preset identifier ..... | |  
BKC-DIP zone identifier ..... | | |  
BKC-DIP set command instruction ..... | | | |  
B&K product with a receive ID set to .... | | | | |  
                                     | | | | |  
                                     (0,S,P1=FF,3=0;)
```

Copy the below strings to select a source.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

```
Tuner      -   (0,S,P1=FF,3=0;)  
V1         -   (0,S,P1=FF,3=1;)  
V2         -   (0,S,P1=FF,3=2;)  
V3         -   (0,S,P1=FF,3=3;)  
DVD        -   (0,S,P1=FF,3=4;)  
CD         -   (0,S,P1=FF,3=5;)  
SAT        -   (0,S,P1=FF,3=6;)  
Tape       -   (0,S,P1=FF,3=7;)
```

The following set of strings are the set preset parameters commands to set system preset parameters. The "FF" refers to the current state of the unit, not to any specific preset.

```
BKC-DIP preset parameter identifier state .....  
BKC-DIP current input audio mode parameter ..... |  
BKC-DIP current preset identifier ..... | |  
BKC-DIP zone identifier ..... | | |  
BKC-DIP set command instruction ..... | | | |  
B&K product with a receive ID set to .... | | | | |  
                                     | | | | |  
                                     (0,S,P1=FF,F3=0;)
```

Copy the below strings to select a surround modes.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

```
Mono       -   (0,S,P1=FF,F3=0;)  
Stereo     -   (0,S,P1=FF,F3=1;)  
Surround   -   (0,S,P1=FF,F3=2;)  
THX        -   (0,S,P1=FF,F3=3;)  
DVD Audio  -   (0,S,P1=FF,F3=4;)
```

The following set of strings are the set preset parameters commands to set system preset parameters. The "FF" refers to the current state of the unit, not to any specific preset.

```
BKC-DIP preset parameter identifier state .....  
BKC-DIP current volume parameter identifier ..... |  
BKC-DIP current preset identifier ..... | |  
BKC-DIP zone identifier ..... | | |  
BKC-DIP set command instruction ..... | | | |
```

B&K product with a receive ID set to | | | | |
 | | | | |
 (0,S,P1=FF,1=0;)

Copy the below strings to change the master volume to a specific dB level.
 NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

- Mute - (0,S,P1=FF,1=0;)
- 90dB - (0,S,P1=FF,1=6;)
- 80dB - (0,S,P1=FF,1=10;)
- 70dB - (0,S,P1=FF,1=1A;)
- 60dB - (0,S,P1=FF,1=24;)
- 50dB - (0,S,P1=FF,1=2E;)
- 40dB - (0,S,P1=FF,1=38;)
- 30dB - (0,S,P1=FF,1=42;)
- 20dB - (0,S,P1=FF,1=4C;)
- 15dB - (0,S,P1=FF,1=51;)
- 10dB - (0,S,P1=FF,1=56;)
- 5dB - (0,S,P1=FF,1=5B;)
- 0dB - (0,S,P1=FF,1=60;)
- +5dB - (0,S,P1=FF,1=65;)
- +10dB - (0,S,P1=FF,1=6A;)
- +15dB - (0,S,P1=FF,1=6F;)

The following set of strings are the set preset parameters commands to set system preset parameters. The "FF" refers to the current state of the unit, not to any specific preset.

BKC-DIP preset parameter identifier state
 BKC-DIP FM frequency parameter identifier |
 BKC-DIP current preset identifier | |
 BKC-DIP zone identifier | | |
 BKC-DIP set command instruction | | | |
 B&K product with a receive ID set to | | | | |
 | | | | |
 (0,S,P1=FF,6=6;)

Zone 1 of a Ref20, 30 or AVR202,307 (not valid for CT series product).
 Copy the below strings to change FM frequency.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

- | | |
|------------------------------|-------------------------------|
| 87.5 MHz - (0,S,P1=FF,6=1;) | 98.3 MHz - (0,S,P1=FF,6=37;) |
| 87.7 MHz - (0,S,P1=FF,6=2;) | 98.5 MHz - (0,S,P1=FF,6=38;) |
| 87.9 MHz - (0,S,P1=FF,6=3;) | 98.7 MHz - (0,S,P1=FF,6=39;) |
| 88.1 MHz - (0,S,P1=FF,6=4;) | 98.9 MHz - (0,S,P1=FF,6=3A;) |
| 88.3 MHz - (0,S,P1=FF,6=5;) | 99.1 MHz - (0,S,P1=FF,6=3B;) |
| 88.5 MHz - (0,S,P1=FF,6=6;) | 99.3 MHz - (0,S,P1=FF,6=3C;) |
| 88.7 MHz - (0,S,P1=FF,6=7;) | 99.5 MHz - (0,S,P1=FF,6=3D;) |
| 88.9 MHz - (0,S,P1=FF,6=8;) | 99.7 MHz - (0,S,P1=FF,6=3E;) |
| 89.1 MHz - (0,S,P1=FF,6=9;) | 99.9 MHz - (0,S,P1=FF,6=3F;) |
| 89.3 MHz - (0,S,P1=FF,6=A;) | 100.1 MHz - (0,S,P1=FF,6=40;) |
| 89.5 MHz - (0,S,P1=FF,6=B;) | 100.3 MHz - (0,S,P1=FF,6=41;) |
| 89.7 MHz - (0,S,P1=FF,6=C;) | 100.5 MHz - (0,S,P1=FF,6=42;) |
| 89.9 MHz - (0,S,P1=FF,6=D;) | 100.7 MHz - (0,S,P1=FF,6=43;) |
| 90.1 MHz - (0,S,P1=FF,6=E;) | 100.9 MHz - (0,S,P1=FF,6=44;) |
| 90.3 MHz - (0,S,P1=FF,6=F;) | 101.1 MHz - (0,S,P1=FF,6=45;) |
| 90.5 MHz - (0,S,P1=FF,6=10;) | 101.3 MHz - (0,S,P1=FF,6=46;) |
| 90.7 MHz - (0,S,P1=FF,6=11;) | 101.5 MHz - (0,S,P1=FF,6=47;) |
| 90.9 MHz - (0,S,P1=FF,6=12;) | 101.7 MHz - (0,S,P1=FF,6=48;) |
| 91.1 MHz - (0,S,P1=FF,6=13;) | 101.9 MHz - (0,S,P1=FF,6=49;) |
| 91.3 MHz - (0,S,P1=FF,6=14;) | 102.1 MHz - (0,S,P1=FF,6=4A;) |
| 91.5 MHz - (0,S,P1=FF,6=15;) | 102.3 MHz - (0,S,P1=FF,6=4B;) |

91.7 MHz - (0,S,P1=FF,6=16;)	102.5 MHz - (0,S,P1=FF,6=4C;)
91.9 MHz - (0,S,P1=FF,6=17;)	102.7 MHz - (0,S,P1=FF,6=4D;)
92.1 MHz - (0,S,P1=FF,6=18;)	102.9 MHz - (0,S,P1=FF,6=4E;)
92.3 MHz - (0,S,P1=FF,6=19;)	103.1 MHz - (0,S,P1=FF,6=4F;)
92.5 MHz - (0,S,P1=FF,6=1A;)	103.3 MHz - (0,S,P1=FF,6=50;)
92.7 MHz - (0,S,P1=FF,6=1B;)	103.5 MHz - (0,S,P1=FF,6=51;)
92.9 MHz - (0,S,P1=FF,6=1C;)	103.7 MHz - (0,S,P1=FF,6=52;)
93.1 MHz - (0,S,P1=FF,6=1D;)	103.9 MHz - (0,S,P1=FF,6=53;)
93.3 MHz - (0,S,P1=FF,6=1E;)	104.1 MHz - (0,S,P1=FF,6=54;)
93.5 MHz - (0,S,P1=FF,6=1F;)	104.3 MHz - (0,S,P1=FF,6=55;)
93.7 MHz - (0,S,P1=FF,6=20;)	104.5 MHz - (0,S,P1=FF,6=56;)
93.9 MHz - (0,S,P1=FF,6=21;)	104.7 MHz - (0,S,P1=FF,6=57;)
94.1 MHz - (0,S,P1=FF,6=22;)	104.9 MHz - (0,S,P1=FF,6=58;)
94.3 MHz - (0,S,P1=FF,6=23;)	105.1 MHz - (0,S,P1=FF,6=59;)
94.5 MHz - (0,S,P1=FF,6=24;)	105.3 MHz - (0,S,P1=FF,6=5A;)
94.7 MHz - (0,S,P1=FF,6=25;)	105.7 MHz - (0,S,P1=FF,6=5C;)
94.9 MHz - (0,S,P1=FF,6=26;)	105.9 MHz - (0,S,P1=FF,6=5D;)
95.1 MHz - (0,S,P1=FF,6=27;)	106.1 MHz - (0,S,P1=FF,6=5E;)
95.3 MHz - (0,S,P1=FF,6=28;)	106.3 MHz - (0,S,P1=FF,6=5F;)
95.5 MHz - (0,S,P1=FF,6=29;)	106.5 MHz - (0,S,P1=FF,6=60;)
95.7 MHz - (0,S,P1=FF,6=2A;)	106.7 MHz - (0,S,P1=FF,6=61;)
95.9 MHz - (0,S,P1=FF,6=2B;)	106.9 MHz - (0,S,P1=FF,6=62;)
96.1 MHz - (0,S,P1=FF,6=2C;)	107.1 MHz - (0,S,P1=FF,6=63;)
96.3 MHz - (0,S,P1=FF,6=2D;)	107.3 MHz - (0,S,P1=FF,6=64;)
96.5 MHz - (0,S,P1=FF,6=2E;)	107.5 MHz - (0,S,P1=FF,6=65;)
96.7 MHz - (0,S,P1=FF,6=2F;)	107.7 MHz - (0,S,P1=FF,6=66;)
96.9 MHz - (0,S,P1=FF,6=30;)	107.9 MHz - (0,S,P1=FF,6=67;)
97.1 MHz - (0,S,P1=FF,6=31;)	
97.3 MHz - (0,S,P1=FF,6=32;)	
97.5 MHz - (0,S,P1=FF,6=33;)	
97.7 MHz - (0,S,P1=FF,6=34;)	
97.9 MHz - (0,S,P1=FF,6=35;)	
98.1 MHz - (0,S,P1=FF,6=36;)	

Zone 1 of a Ref20, 30 or AVR202,307 (not valid for CT series product).
Copy the below strings to change AM frequency.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

520 kHz - (0,S,P1=FF,5=1;)	1110 kHz - (0,S,P1=FF,5=3C;)
530 kHz - (0,S,P1=FF,5=2;)	1120 kHz - (0,S,P1=FF,5=3D;)
540 kHz - (0,S,P1=FF,5=3;)	1130 kHz - (0,S,P1=FF,5=3E;)
550 kHz - (0,S,P1=FF,5=4;)	1140 kHz - (0,S,P1=FF,5=3F;)
560 kHz - (0,S,P1=FF,5=5;)	1150 kHz - (0,S,P1=FF,5=40;)
570 kHz - (0,S,P1=FF,5=6;)	1160 kHz - (0,S,P1=FF,5=41;)
580 kHz - (0,S,P1=FF,5=7;)	1170 kHz - (0,S,P1=FF,5=42;)
590 kHz - (0,S,P1=FF,5=8;)	1180 kHz - (0,S,P1=FF,5=43;)
600 kHz - (0,S,P1=FF,5=9;)	1190 kHz - (0,S,P1=FF,5=44;)
610 kHz - (0,S,P1=FF,5=A;)	1200 kHz - (0,S,P1=FF,5=45;)
620 kHz - (0,S,P1=FF,5=B;)	1210 kHz - (0,S,P1=FF,5=46;)
630 kHz - (0,S,P1=FF,5=C;)	1220 kHz - (0,S,P1=FF,5=47;)
640 kHz - (0,S,P1=FF,5=D;)	1230 kHz - (0,S,P1=FF,5=48;)
650 kHz - (0,S,P1=FF,5=E;)	1240 kHz - (0,S,P1=FF,5=49;)
660 kHz - (0,S,P1=FF,5=F;)	1250 kHz - (0,S,P1=FF,5=4A;)
670 kHz - (0,S,P1=FF,5=10;)	1260 kHz - (0,S,P1=FF,5=4B;)
680 kHz - (0,S,P1=FF,5=11;)	1270 kHz - (0,S,P1=FF,5=4C;)
690 kHz - (0,S,P1=FF,5=12;)	1280 kHz - (0,S,P1=FF,5=4D;)
700 kHz - (0,S,P1=FF,5=13;)	1290 kHz - (0,S,P1=FF,5=4E;)
710 kHz - (0,S,P1=FF,5=14;)	1300 kHz - (0,S,P1=FF,5=4F;)
720 kHz - (0,S,P1=FF,5=15;)	1310 kHz - (0,S,P1=FF,5=50;)
730 kHz - (0,S,P1=FF,5=16;)	1320 kHz - (0,S,P1=FF,5=51;)
740 kHz - (0,S,P1=FF,5=17;)	1330 kHz - (0,S,P1=FF,5=52;)
750 kHz - (0,S,P1=FF,5=18;)	1340 kHz - (0,S,P1=FF,5=53;)


```
(0,S,M0=1,0=1,1=BE,2=0,3=2,4=3F,5="Hello World");
```

The BKC-DIP Macro command has the following defaults:

BKC-DIP Macro parameter (Baud Rate)	3=2 9600 baud
(or the current system baud rate)	
BKC-DIP Macro trigger Scrollable (Yes or No)	2=0 No Scroll.
BKC-DIP Macro RS232 Xmit Port (A,B,C,D,E,F) Mask parameter	4=3F Zones A-F

```
(0,S,M0=1,0=1,1=BE,5="Hello World");
```

Copy the above string to a CT610/310

to configure the following system parameters:

- 1) Create a Macro Number 1 (M0=1)
- 2) Macro Number 1 is set to be triggered by a Zone/Code Set 1 (0=1) IR "Exit" Command (1=BE).
- 3) When the CT610/310 receives a Zone/Code Set 1 IR Exit Command, the RS232 Main (RJ45) Port, and the individual Xmit terminals of Zones A,B,C,D,E and F will be sent the ASCII message Hello World.

An example of how the CT610/310 Common Control Inputs 1 and 2 may be used to sense a Doorbell and Phone trigger and Xmit a BKC-DIP OnScreenDisplay message to a B&K REF30.

Set CT610/310 System Settings

Copy the below string to set Page/Event 1 Assert, triggers Macro Number 1

```
(0,S,S,D8=1;)
```

Copy the below string to set Page/Event 1 Deassert, triggers Macro Number 2

```
(0,S,S,D9=2;)
```

Copy the below string to set Page/Event 2 Assert, triggers Macro Number 3

```
(0,S,S,DA=3;)
```

Copy the below string to set Page/Event 2 Deassert, triggers Macro Number 4

```
(0,S,S,DB=4;)
```

Next, we need to setup 4 CT610/310 Serial Macros.

Copy the below string to set CT610/310 Serial Macro 1 to Xmit out all ports A-F the message DOORBELL ON (Front Panel Display) and SOMEONE IS AT THE DOOR (OSD) when Common Control In 1.

Note: Page/Event 1 must be set to use Common Control In 1

```
(0,S,M0=1,4=3F,5="(0,D,F,T0,X0,Y0,\" DOORBELL ON \");(0,D,O,T0,M1,X1,Y11,\" SOMEONE IS AT THE DOOR \");");
```

Copy the below string to set CT610/310 Serial Macro 2 to Xmit out all ports A-F the message DOORBELL OFF (Front Panel Display) and SOMEONE JUST LEFT (OSD) when Common Control In 1 loses its trigger.

Note: Page/Event 1 must be set to use Common Control In 1

```
(0,S,M0=2,4=3F,5="(0,D,F,T32,X0,Y0,\" DOORBELL OFF \");(0,D,O,T0,M1,X1,Y11,\" SOMEONE JUST LEFT \");");
```

Copy the below string to set CT610/310 Serial Macro 3 to Xmit out all ports A-F the message ANSWER PHONE (Front Panel Display) and ANSWER THE PHONE (OSD) when Common Control In 2 is triggered.

Note: Page/Event 2 must be set to use Common Control In 2

```
(0,S,M0=3,4=3F,5="(0,D,F,T0,X0,Y0,\" ANSWER PHONE \");(0,D,O,T0,M1,X1,Y11
,\" ANSWER THE PHONE \");");
```

Copy the below string to set CT610/310 Serial Macro 4 to Xmit out all ports A-F the message THEY HUNG UP (Front Panel Display) and THEY HUNG UP (OSD) when Common Control In 2 loses its trigger.

Note: Page/Event 2 must be set to use Common Control In 2

```
(0,S,M0=4,4=3F,5="(0,D,F,T32,X0,Y0,\" THEY HUNG UP \");(0,D,O,T0,M1,X1,Y11
,\" THEY HUNG UP \");");
```

The CT610/310 is now configured to source formatted BKC-DIP messages out Ports A-F and the main RJ45 (only 1 RS232 port is needed to link to the REF30).

The displayed messages are shown below:

REF30	Front Panel Result:	OSD Result:
	DOORBELL ON	SOMEONE IS AT THE DOOR
	DOORBELL OFF	SOMEONE JUST LEFT
	ANSWER PHONE	ANSWER THE PHONE
	THEY HUNG UP	THEY HUNG UP

QUICKREFERENCE

Copy the below strings to select a source.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Tuner (0,S,I,1=70;)

IN_1 [V1] (0,S,I,1=A0;)

IN_2 [V2] (0,S,I,1=90;)

IN_3 [V3] (0,S,I,1=60;)

IN_4 [DVD] (0,S,I,1=B0;)

IN_5 [CD] (0,S,I,1=F0;)

IN_6 [SAT] (0,S,I,1=52;)

IN_7 [TAPE] (0,S,I,1=D0;)

IN_8 [V4] (0,S,I,1=E0;)

IN_9 [V5] (0,S,I,1=76;)

B&K intends to add IR support for the following sources:

IN_10 [V6] (0,S,I,1=E9;)

IN_11 [V7] (0,S,I,1=EA;)

IN_12 [V8] (0,S,I,1=EB;)

IN_13 [V9] (0,S,I,1=ED;)

IN_14 [V10] (0,S,I,1=EE;)

IN_15 [V11] (0,S,I,1=EF;)

IN_16 [V12] (0,S,I,1=F5;)

IN_17 [V13] (0,S,I,1=F6;)

IN_18 [V14] (0,S,I,1=F7;)

Copy the below string to toggle "Zone 1" power state on/off.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Power On/Off Toggle - (0,S,I,1=45;)

Copy the below strings for "Zone 1" discrete Power On and Off commands.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Power Off - (0,S,I,1=7F;)
Power On - (0,S,I,1=BF;)

Copy the below strings to increase or decrease the zone master volume.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Increase - (0,S,I,1=24;)
Decrease - (0,S,I,1=C4;)

Copy the below strings to recall presets.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Preset 0 - (0,X,0,1=0;)
Preset 1 - (0,X,0,1=1;)
Preset 2 - (0,X,0,1=2;)
.
.
.
Preset 39 - (0,X,0,1=39;)

Copy the below strings to control zone power state.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Zone 1 Off - (0,X,2,1=0;)
Zone 1 On - (0,X,2,1=1;)
Zone 2 Off - (0,X,2,2=0;)
Zone 2 On - (0,x,2,2=1;)

Copy the below string to display text on the Vacuum Fluorescent Display "VFP".

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

(0,D,F,T64,X0,Y0,"BK COMPONENTS"); - T64 = 64h * 100ms (10 Seconds)

Copy the below strings to display text on the On Screen Display "OSD".

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

(0,D,O,T0,M0,X07,Y04,"B&K COMPONENTS",X6,Y05,"CUSTOM INSTALL");)

Copy the below strings to display text on the On Screen Display "OSD".

(0,D,O,T0,M0,,X00,Y00,"XXXXXXXXXXXX XXX XXX"
,X00,Y01,"XXXXXXXXXXXX XXX XXX ",X00,Y02,"XXX XXX XXX "
,X00,Y03,"XXX XXX XXX ",X00,Y04,"XXXXXXXXXXXX XXX XXX "
,X00,Y05,"XXXXXXXXXXXX XXXXXXXX ",X00,Y06,"XXX XXX XXXXXXXX "
,X00,Y07,"XXX XXX XXX XXX ",X00,Y08,"XXX XXX XXX XXX "
,X00,Y09,"XXXXXXXXXXXX XXX XXXX ",X00,Y0A,"XXXXXXXXXXXX XXX XXXX");)

Copy the below string to acquire the contents of the Vacuum Fluorescent Display.

(0,G,D,F;)

Copy the below string to acquire the contents of the On Screen Display.

(0,G,D,O;)

Zone 1 of a Ref20, 30 or AVR202,307 (not valid for CT series product).

Copy the below strings to change the master volume to a specific dB level.

Series I or II tor products.

(not correct "parameter" for a PT3 or CT series product).

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

Mute - (0,S,P1=FF,1=0;)

-90dB - (0,S,P1=FF,1=6;)
 -80dB - (0,S,P1=FF,1=10;)
 -70dB - (0,S,P1=FF,1=1A;)
 -60dB - (0,S,P1=FF,1=24;)
 -50dB - (0,S,P1=FF,1=2E;)
 -40dB - (0,S,P1=FF,1=38;)
 -30dB - (0,S,P1=FF,1=42;)
 -20dB - (0,S,P1=FF,1=4C;)
 -15dB - (0,S,P1=FF,1=51;)
 -10dB - (0,S,P1=FF,1=56;)
 -5 dB - (0,S,P1=FF,1=5B;)
 0 dB - (0,S,P1=FF,1=60;)
 + 5dB - (0,S,P1=FF,1=65;)
 +10dB - (0,S,P1=FF,1=6A;)
 +15dB - (0,S,P1=FF,1=6F;)

CT series products. (not valid for PT3, Series I or II products).

Copy the below strings to change FM frequency.

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

87.5 MHz - (0,S,P1=FF,9=1;)	98.3 MHz - (0,S,P1=FF,9=37;)
87.7 MHz - (0,S,P1=FF,9=2;)	98.5 MHz - (0,S,P1=FF,9=38;)
87.9 MHz - (0,S,P1=FF,9=3;)	98.7 MHz - (0,S,P1=FF,9=39;)
88.1 MHz - (0,S,P1=FF,9=4;)	98.9 MHz - (0,S,P1=FF,9=3A;)
88.3 MHz - (0,S,P1=FF,9=5;)	99.1 MHz - (0,S,P1=FF,9=3B;)
88.5 MHz - (0,S,P1=FF,9=6;)	99.3 MHz - (0,S,P1=FF,9=3C;)
88.7 MHz - (0,S,P1=FF,9=7;)	99.5 MHz - (0,S,P1=FF,9=3D;)
88.9 MHz - (0,S,P1=FF,9=8;)	99.7 MHz - (0,S,P1=FF,9=3E;)
89.1 MHz - (0,S,P1=FF,9=9;)	99.9 MHz - (0,S,P1=FF,9=3F;)
89.3 MHz - (0,S,P1=FF,9=A;)	100.1 MHz - (0,S,P1=FF,9=40;)
89.5 MHz - (0,S,P1=FF,9=B;)	100.3 MHz - (0,S,P1=FF,9=41;)
89.7 MHz - (0,S,P1=FF,9=C;)	100.5 MHz - (0,S,P1=FF,9=42;)
89.9 MHz - (0,S,P1=FF,9=D;)	100.7 MHz - (0,S,P1=FF,9=43;)
90.1 MHz - (0,S,P1=FF,9=E;)	100.9 MHz - (0,S,P1=FF,9=44;)
90.3 MHz - (0,S,P1=FF,9=F;)	101.1 MHz - (0,S,P1=FF,9=45;)
90.5 MHz - (0,S,P1=FF,9=10;)	101.3 MHz - (0,S,P1=FF,9=46;)
90.7 MHz - (0,S,P1=FF,9=11;)	101.5 MHz - (0,S,P1=FF,9=47;)
90.9 MHz - (0,S,P1=FF,9=12;)	101.7 MHz - (0,S,P1=FF,9=48;)
91.1 MHz - (0,S,P1=FF,9=13;)	101.9 MHz - (0,S,P1=FF,9=49;)
91.3 MHz - (0,S,P1=FF,9=14;)	102.1 MHz - (0,S,P1=FF,9=4A;)
91.5 MHz - (0,S,P1=FF,9=15;)	102.3 MHz - (0,S,P1=FF,9=4B;)
91.7 MHz - (0,S,P1=FF,9=16;)	102.5 MHz - (0,S,P1=FF,9=4C;)
91.9 MHz - (0,S,P1=FF,9=17;)	102.7 MHz - (0,S,P1=FF,9=4D;)
92.1 MHz - (0,S,P1=FF,9=18;)	102.9 MHz - (0,S,P1=FF,9=4E;)
92.3 MHz - (0,S,P1=FF,9=19;)	103.1 MHz - (0,S,P1=FF,9=4F;)
92.5 MHz - (0,S,P1=FF,9=1A;)	103.3 MHz - (0,S,P1=FF,9=50;)
92.7 MHz - (0,S,P1=FF,9=1B;)	103.5 MHz - (0,S,P1=FF,9=51;)
92.9 MHz - (0,S,P1=FF,9=1C;)	103.7 MHz - (0,S,P1=FF,9=52;)
93.1 MHz - (0,S,P1=FF,9=1D;)	103.9 MHz - (0,S,P1=FF,9=53;)
93.3 MHz - (0,S,P1=FF,9=1E;)	104.1 MHz - (0,S,P1=FF,9=54;)
93.5 MHz - (0,S,P1=FF,9=1F;)	104.3 MHz - (0,S,P1=FF,9=55;)
93.7 MHz - (0,S,P1=FF,9=20;)	104.5 MHz - (0,S,P1=FF,9=56;)
93.9 MHz - (0,S,P1=FF,9=21;)	104.7 MHz - (0,S,P1=FF,9=57;)
94.1 MHz - (0,S,P1=FF,9=22;)	104.9 MHz - (0,S,P1=FF,9=58;)
94.3 MHz - (0,S,P1=FF,9=23;)	105.1 MHz - (0,S,P1=FF,9=59;)
94.5 MHz - (0,S,P1=FF,9=24;)	105.3 MHz - (0,S,P1=FF,9=5A;)
94.7 MHz - (0,S,P1=FF,9=25;)	105.7 MHz - (0,S,P1=FF,9=5C;)
94.9 MHz - (0,S,P1=FF,9=26;)	105.9 MHz - (0,S,P1=FF,9=5D;)
95.1 MHz - (0,S,P1=FF,9=27;)	106.1 MHz - (0,S,P1=FF,9=5E;)
95.3 MHz - (0,S,P1=FF,9=28;)	106.3 MHz - (0,S,P1=FF,9=5F;)
95.5 MHz - (0,S,P1=FF,9=29;)	106.5 MHz - (0,S,P1=FF,9=60;)
95.7 MHz - (0,S,P1=FF,9=2A;)	106.7 MHz - (0,S,P1=FF,9=61;)

95.9 MHz - (0,S,P1=FF,9=2B;)	106.9 MHz - (0,S,P1=FF,9=62;)
96.1 MHz - (0,S,P1=FF,9=2C;)	107.1 MHz - (0,S,P1=FF,9=63;)
96.3 MHz - (0,S,P1=FF,9=2D;)	107.3 MHz - (0,S,P1=FF,9=64;)
96.5 MHz - (0,S,P1=FF,9=2E;)	107.5 MHz - (0,S,P1=FF,9=65;)
96.7 MHz - (0,S,P1=FF,9=2F;)	107.7 MHz - (0,S,P1=FF,9=66;)
96.9 MHz - (0,S,P1=FF,9=30;)	107.9 MHz - (0,S,P1=FF,9=67;)
97.1 MHz - (0,S,P1=FF,9=31;)	
97.3 MHz - (0,S,P1=FF,9=32;)	
97.5 MHz - (0,S,P1=FF,9=33;)	
97.7 MHz - (0,S,P1=FF,9=34;)	
97.9 MHz - (0,S,P1=FF,9=35;)	
98.1 MHz - (0,S,P1=FF,9=36;)	

CT series products. (not valid for PT3, Series I or II products).

Copy the below strings to change the AM frequency in type of product

NOTE: Only copy and include between the open "(" and Close ")" parenthesis.

520 kHz - (0,S,P1=FF,8=1;)	1110 kHz - (0,S,P1=FF,8=3C;)
530 kHz - (0,S,P1=FF,8=2;)	1120 kHz - (0,S,P1=FF,8=3D;)
540 kHz - (0,S,P1=FF,8=3;)	1130 kHz - (0,S,P1=FF,8=3E;)
550 kHz - (0,S,P1=FF,8=4;)	1140 kHz - (0,S,P1=FF,8=3F;)
560 kHz - (0,S,P1=FF,8=5;)	1150 kHz - (0,S,P1=FF,8=40;)
570 kHz - (0,S,P1=FF,8=6;)	1160 kHz - (0,S,P1=FF,8=41;)
580 kHz - (0,S,P1=FF,8=7;)	1170 kHz - (0,S,P1=FF,8=42;)
590 kHz - (0,S,P1=FF,8=8;)	1180 kHz - (0,S,P1=FF,8=43;)
600 kHz - (0,S,P1=FF,8=9;)	1190 kHz - (0,S,P1=FF,8=44;)
610 kHz - (0,S,P1=FF,8=A;)	1200 kHz - (0,S,P1=FF,8=45;)
620 kHz - (0,S,P1=FF,8=B;)	1210 kHz - (0,S,P1=FF,8=46;)
630 kHz - (0,S,P1=FF,8=C;)	1220 kHz - (0,S,P1=FF,8=47;)
640 kHz - (0,S,P1=FF,8=D;)	1230 kHz - (0,S,P1=FF,8=48;)
650 kHz - (0,S,P1=FF,8=E;)	1240 kHz - (0,S,P1=FF,8=49;)
660 kHz - (0,S,P1=FF,8=F;)	1250 kHz - (0,S,P1=FF,8=4A;)
670 kHz - (0,S,P1=FF,8=10;)	1260 kHz - (0,S,P1=FF,8=4B;)
680 kHz - (0,S,P1=FF,8=11;)	1270 kHz - (0,S,P1=FF,8=4C;)
690 kHz - (0,S,P1=FF,8=12;)	1280 kHz - (0,S,P1=FF,8=4D;)
700 kHz - (0,S,P1=FF,8=13;)	1290 kHz - (0,S,P1=FF,8=4E;)
710 kHz - (0,S,P1=FF,8=14;)	1300 kHz - (0,S,P1=FF,8=4F;)
720 kHz - (0,S,P1=FF,8=15;)	1310 kHz - (0,S,P1=FF,8=50;)
730 kHz - (0,S,P1=FF,8=16;)	1320 kHz - (0,S,P1=FF,8=51;)
740 kHz - (0,S,P1=FF,8=17;)	1330 kHz - (0,S,P1=FF,8=52;)
750 kHz - (0,S,P1=FF,8=18;)	1340 kHz - (0,S,P1=FF,8=53;)
760 kHz - (0,S,P1=FF,8=19;)	1350 kHz - (0,S,P1=FF,8=54;)
770 kHz - (0,S,P1=FF,8=1A;)	1360 kHz - (0,S,P1=FF,8=55;)
780 kHz - (0,S,P1=FF,8=1B;)	1370 kHz - (0,S,P1=FF,8=56;)
790 kHz - (0,S,P1=FF,8=1C;)	1380 kHz - (0,S,P1=FF,8=57;)
800 kHz - (0,S,P1=FF,8=1D;)	1390 kHz - (0,S,P1=FF,8=58;)
810 kHz - (0,S,P1=FF,8=1E;)	1400 kHz - (0,S,P1=FF,8=59;)
820 kHz - (0,S,P1=FF,8=1F;)	1410 kHz - (0,S,P1=FF,8=5A;)
830 kHz - (0,S,P1=FF,8=20;)	1420 kHz - (0,S,P1=FF,8=5B;)
840 kHz - (0,S,P1=FF,8=21;)	1430 kHz - (0,S,P1=FF,8=5C;)
850 kHz - (0,S,P1=FF,8=22;)	1440 kHz - (0,S,P1=FF,8=5D;)
860 kHz - (0,S,P1=FF,8=23;)	1450 kHz - (0,S,P1=FF,8=5E;)
870 kHz - (0,S,P1=FF,8=24;)	1460 kHz - (0,S,P1=FF,8=5F;)
880 kHz - (0,S,P1=FF,8=25;)	1470 kHz - (0,S,P1=FF,8=60;)
890 kHz - (0,S,P1=FF,8=26;)	1480 kHz - (0,S,P1=FF,8=61;)
900 kHz - (0,S,P1=FF,8=27;)	1490 kHz - (0,S,P1=FF,8=62;)
910 kHz - (0,S,P1=FF,8=28;)	1500 kHz - (0,S,P1=FF,8=63;)
920 kHz - (0,S,P1=FF,8=29;)	1510 kHz - (0,S,P1=FF,8=64;)
930 kHz - (0,S,P1=FF,8=2A;)	1520 kHz - (0,S,P1=FF,8=65;)
940 kHz - (0,S,P1=FF,8=2B;)	1530 kHz - (0,S,P1=FF,8=66;)
950 kHz - (0,S,P1=FF,8=2C;)	1540 kHz - (0,S,P1=FF,8=67;)
960 kHz - (0,S,P1=FF,8=2D;)	1550 kHz - (0,S,P1=FF,8=68;)

970 kHz - (0,S,P1=FF,8=2E;)	1560 kHz - (0,S,P1=FF,8=69;)
980 kHz - (0,S,P1=FF,8=2F;)	1570 kHz - (0,S,P1=FF,8=6A;)
990 kHz - (0,S,P1=FF,8=30;)	1580 kHz - (0,S,P1=FF,8=6B;)
1000 kHz - (0,S,P1=FF,8=31;)	1590 kHz - (0,S,P1=FF,8=6C;)
1010 kHz - (0,S,P1=FF,8=32;)	1600 kHz - (0,S,P1=FF,8=6D;)
1020 kHz - (0,S,P1=FF,8=33;)	1610 kHz - (0,S,P1=FF,8=6E;)
1030 kHz - (0,S,P1=FF,8=34;)	1620 kHz - (0,S,P1=FF,8=6F;)
1040 kHz - (0,S,P1=FF,8=35;)	1630 kHz - (0,S,P1=FF,8=70;)
1050 kHz - (0,S,P1=FF,8=36;)	1640 kHz - (0,S,P1=FF,8=71;)
1060 kHz - (0,S,P1=FF,8=37;)	1650 kHz - (0,S,P1=FF,8=72;)
1070 kHz - (0,S,P1=FF,8=38;)	1660 kHz - (0,S,P1=FF,8=73;)
1080 kHz - (0,S,P1=FF,8=39;)	1670 kHz - (0,S,P1=FF,8=74;)
1090 kHz - (0,S,P1=FF,8=3A;)	
1100 kHz - (0,S,P1=FF,8=3B;)	

B&K_Mastr_IR_081002.txt

B&K MASTER IR CODE DATA

05/13/97 ESM, Defined preliminary structures.
07/09/97 RJS, Revised & updated with new (unused) hex #s.
11/13/97 RJS, Added 200 - 222 with new (unused) hex #s.
11/18/97 ESM, Added product ID notes 'Intended for ?'.
11/19/97 ESM, Per LEE, RJD, 0xFF is used to indicate "no IR" in the
16 bit data format returned from the Z8.
01/19/99 ESM, Added new IR codes and Supplied a Mastr_ir.123 file
for easier NEXT IR CODE.
MUTE_ON
MUTE_OFF
03/19/99 ESM, Added new IR code
LOUDNESS
11/09/99 ESM, Redefined IR code
to ZONE
B to EQ
CINEMA to THX
FUTURE B to MONO
PNP SURROUND
RETURN to EXIT
03/10/00 ESM, Redefined IR code
C to DVD_AUD
05/17/01 ESM, Redefined IR code
FX to V4
FUTURE 2 to V5
PNP SURROUND to DEDICATED_IN/HR
05/17/01 ESM, Added new IR code
HIS
HERS
01/19/02 ESM, Added CodeSet (LogicalZoneNumber/Product ID) support IR codes
for 0-255 Zones.
04/09/02 ESM, Added new IR code Source Inputs 10 - 18
V6
V7
V8
V9
V10
V11
V12
V13
V14
04/09/02 ESM, Swapped original (intended) CodeSet (LogicalZoneNumbers)
of Z0 and Z16 to allow future Z0 whole house commands
in Seies I and II products with a SL9000 type remote

(i.e. set remote to B&K ID 16 for whole house).

07/29/02 ESM, Redefined IR code
DTS 5.1 top NEO6
Pro Logic to DPL_I
Future A to DPL_II
3 ST Hall to Music
Arena A to Movie
Debug to Panaroma On
Reset to Panaroma Off
FRONT LCR DLY - to Image -
FRONT LCR DLY + to Image +
SIDE LR DLY - to Dimension -
SIDE LR DLY + to Dimension +
08/06/02 ESM, cleaned up B&K IR names.
08/10/02 ESM, renamed IR codes
3_STEREO to STEREO_3
RETURN_EXIT to EXIT_RETURN

```
/*-----*/  
/* Function to generate B&K Custom Codes give LogicalZoneNumber */  
/* */  
/* The following is the encoded output: */  
/* */  
/* Logical Zone Number 0: DF */  
/* */  
/* Logical Zone Number 1: D8,D0,D1,D2,D3,D4,D5,D6,D7,D9,DA,DB,DC,DD,DE,CF,*/  
/* Logical Zone Number 17: E8,E0,E1,E2,E3,E4,E5,E6,E7,E9,EA,EB,EC,ED,EE,EF,*/  
/* Logical Zone Number 33: F8,F0,F1,F2,F3,F4,F5,F6,F7,F9,FA,FB,FC,FD,FE,FF,*/  
/* Logical Zone Number 49: 08,00,01,02,03,04,05,06,07,09,0A,0B,0C,0D,0E,0F,*/  
/* Logical Zone Number 65: 18,10,11,12,13,14,15,16,17,19,1A,1B,1C,1D,1E,1F,*/  
/* Logical Zone Number 81: 28,20,21,22,23,24,25,26,27,29,2A,2B,2C,2D,2E,2F,*/  
/* Logical Zone Number 97: 38,30,31,32,33,34,35,36,37,39,3A,3B,3C,3D,3E,3F,*/  
/* Logical Zone Number 113: 48,40,41,42,43,44,45,46,47,49,4A,4B,4C,4D,4E,4F,*/  
/* Logical Zone Number 129: 58,50,51,52,53,54,55,56,57,59,5A,5B,5C,5D,5E,5F,*/  
/* Logical Zone Number 145: 68,60,61,62,63,64,65,66,67,69,6A,6B,6C,6D,6E,6F,*/  
/* Logical Zone Number 161: 78,70,71,72,73,74,75,76,77,79,7A,7B,7C,7D,7E,7F,*/  
/* Logical Zone Number 177: 88,80,81,82,83,84,85,86,87,89,8A,8B,8C,8D,8E,8F,*/  
/* Logical Zone Number 193: 98,90,91,92,93,94,95,96,97,99,9A,9B,9C,9D,9E,9F,*/  
/* Logical Zone Number 209: A8,A0,A1,A2,A3,A4,A5,A6,A7,A9,AA,AB,AC,AD,AE,AF,*/  
/* Logical Zone Number 225: B8,B0,B1,B2,B3,B4,B5,B6,B7,B9,BA,BB,BC,BD,BE,BF,*/  
/* Logical Zone Number 241: C8,C0,C1,C2,C3,C4,C5,C6,C7,C9,CA,CB,CC,CD,CE */  
/*-----*/
```

CT SERIES INPUT TO REMOTE KEY DEFINITION

TUNER = TUNER = 70h
IN 1 = V1 = A0h
IN 2 = V2 = 90h
IN 3 = TV = 60h
IN 4 = DVD = B0h
IN 5 = CD = F0h
IN 6 = SAT = 52h
IN 7 = TAPE = D0h
IN 8 = IN 8 = E0h
IN 9 = IN 9 = 76h

PRODUCT ID #s 01 and 02 currently exist under their former names Z1 & Z2.

The following are 16 product ID numbers and an assignment of the anticipated custom codes for each product ID:

B&K B&K
 PRODUCT ID# CUSTOM CODE [NIBBLE1 NIBBLE2] , [~NIBBLE2 ~NIBBLE1]

EXAMPLE: [D8] , [72]

```

01            D8,72        /* P1, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
02            D0,F2        /* P2, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
03            D1,E2        /* P3, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
04            D2,D2        /* P4, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
05            D3,C2        /* P5, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
06            D4,B2        /* P6, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
07            D5,A2        /* P7, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
08            D6,92        /* P8, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
09            D7,82        /* P9, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
10            D9,62        /* P10, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
11            DA,52        /* P11, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
12            DB,42        /* P12, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
13            DC,32        /* P13, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
14            DD,22        /* P14, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
15            DE,12        /* P15, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
16            DF,02        /* P16, [ CUSTOM ], [ ~CUSTOM (SWAPPED) ]
  
```

The following are B&K IR KEY/Functions and the corresponding DATA:
 Note! FF is used to indicate "no IR"

therefore must never be assigned as IR key data!

B&K Function	Data,	~Data	NOTE
001	NONE	FF	00 /*** NOT TO BE UESED ***/
002	*	BC	43
003	+10	94	6B
004	0	7C	83
005	1	8C	73
006	2	4C	B3
007	3	CC	33
008	4	AC	53
009	5	6C	93
010	6	EC	13
011	7	9C	63
012	8	5C	A3
013	9	DC	23
014	ALL_B&K_POWER_OFF	14	EB
015	ALL_B&K_POWER_ON	15	EA
016	ALL_B&K_VOL_DOWN	16	E9
017	ALL_B&K_VOL_UP	17	E8
018	ALL_B&K_VOL_0_dB	19	E6
019	ALL_B&K_VOL-20_dB	1A	E5
020	ALL_B&K_VOL-40_dB	1B	E4
021	ALL_B&K_VOL-60_dB	1D	E2
022	ALL_B&K_MUTE	1E	E1
023	AM	6E	91
024	ANALOG_SOURCE_-	5B	A4
025	ANALOG_SOURCE_+	5D	A2
026	ANGLE	BA	45
027	ANT_A/B	D3	2C
028	ARENA_B	4F	B0
029	AUDIO	B7	48
030	AUDIO_PCM	1F	E0
031	AUDIO/DA	12	ED
032	AUTO_FORMAT	27	D8
033	BALANCE_L	F8	07
034	BALANCE_R	04	FB

035	BAND	C8	37
036	BASS_FRONT_-	A6	59
037	BASS_FRONT_+	A7	58
038	BASS_REAR_-	AB	54
039	BASS_REAR_+	AD	52
040	BASS_SIDE_-	A9	56
041	BASS_SIDE_+	AA	55
042	BUY	C5	3A
043	CENTER_LVL_-	A8	57
044	CENTER_LVL_+	68	97
045	CHP/TM	10	EF
046	CLEAR	09	F6
047	CLOSE	0D	F2
048	CONTROL	6D	92
049	CONTROL_OFF	6A	95
050	CONTROL_ON	6B	94
051	DIGITAL_DD	21	DE
052	DIGITAL_DTS	22	DD
053	DIGITAL_FA	25	DA
054	DIGITAL_FB	26	D9
055	DIGITAL_MPEG	23	DC
056	DIGITAL_PCM	20	DF
057	DISPLAY_OFF	67	98
058	DISPLAY_ON	69	96
059	DIGITAL_SOURCE_-	61	9E
060	DIGITAL_SOURCE_+	62	9D
061	DIRECT	46	B9
062	DN	B4	4B
063	DPL_I	56	A9
064	DPL_II	57	A8
065	DVD_AUDIO	D4	2B
066	DISC	B5	4A
067	DISPLAY	3C	C3
068	DIMINSION_-	7F	80
069	DIMINSION_+	81	7E
070	EDIT	75	8A
071	EQ	54	AB
072	ENTER	0C	F3
073	ERASE	C1	3E
074	EXIT_RETURN	BE	41
075	FAV	13	EC
076	FORWARD	07	F8
077	FREQ	48	B7
078	FRONT_L_DLY_-	7A	85
079	FRONT_L_DLY_+	7B	84
080	FRONT_LCR_LVL_-	99	66
081	FRONT_LCR_LVL_+	9A	65
082	FRONT_R_DLY_-	7D	82
083	FRONT_R_DLY_+	7E	81
084	FM	71	8E
085	GUIDE	C3	3C
086	HIS	E1	1E
087	HERS	E2	1D
088	IMAGE_-	77	88
089	IMAGE_+	79	86
090	IN_0/TUNER	70	8F /*** INPUT SOURCE 0 ***/
091	IN_1/V1	A0	5F /*** INPUT SOURCE 1 ***/
092	IN_2/V2	90	6F /*** INPUT SOURCE 2 ***/
093	IN_3/TV/V3	60	9F /*** INPUT SOURCE 3 ***/
094	IN_4/DVD/VLD	B0	4F /*** INPUT SOURCE 4 ***/
095	IN_5/CD	F0	0F /*** INPUT SOURCE 5 ***/
096	IN_6/SAT	52	AD /*** INPUT SOURCE 6 ***/

097	IN_7/TAPE/FX	D0	2F /*** INPUT SOURCE 7 ***/
098	IN_8/V4	E0	1F /*** INPUT SOURCE 8 ***/
099	IN_9/V5	76	89 /*** INPUT SOURCE 9 ***/
100	IN_10/V6	E9	16 /*** INPUT SOURCE 10 ***/
101	IN_11/V7	EA	15 /*** INPUT SOURCE 11 ***/
102	IN_12/V8	EB	14 /*** INPUT SOURCE 12 ***/
103	IN_13/V9	ED	12 /*** INPUT SOURCE 13 ***/
104	IN_14/V10	EE	11 /*** INPUT SOURCE 14 ***/
105	IN_15/V11	EF	10 /*** INPUT SOURCE 15 ***/
106	IN_16/V12	F5	0A /*** INPUT SOURCE 16 ***/
107	IN_17/V13	F6	09 /*** INPUT SOURCE 17 ***/
108	IN_18/V14	F7	08 /*** INPUT SOURCE 18 ***/
109	IN_DEDICATED/HR	5A	A5 /*** INPUT SOURCE HR ***/
110	INFO	CA	35
111	INPUT_FORMAT	28	D7
112	LAST	CB	34
113	LEFT	D1	2E
114	LOUDNESS	F3	0C
115	LW	6F	90
116	MASTER_VOL -	C4	3B
117	MASTER_VOL +	24	DB
118	MENU	F4	0B
119	MIDRANGE -	D5	2A
120	MIDRANGE +	D6	29
121	MODE -	00	FF
122	MODE +	64	9B
123	MONO	59	A6
124	MOVIE	4E	B1
125	M/ST	D7	28
126	MUSIC	4D	B2
127	MUTE	C0	3F
128	MUTE_FRONT_L	29	D6
129	MUTE_FRONT_C	2A	D5
130	MUTE_FRONT_R	2B	D4
131	MUTE_ON	F1	0E
132	MUTE_OFF	F2	0D
133	MUTE_REAR_R	2C	D3
134	MUTE_REAR_L	2D	D2
135	MUTE_SUB	2E	D1
136	MUTE_SIDE_L	2F	D0
137	MUTE_SIDE_R	30	CF
138	NEO_6	55	AA
139	NEXT	C9	36
140	NOISE_FRONT_L	31	CE
141	NOISE_FRONT_C	32	CD
142	NOISE_FRONT_R	33	CC
143	NOISE_REAR_R	34	CB
144	NOISE_REAR_L	35	CA
145	NOISE_SUB	36	C9
146	NOISE_SIDE_L	37	C8
147	NOISE_SIDE_R	39	C6
148	NOISE_ALL	3A	C5
149	OPEN	0B	F4
150	OPEN/CLOSE	C2	3D
151	OSD_OFF	3B	C4
152	OSD_ON	3D	C2
153	OSD_MODE	3E	C1
154	OSD_1	3F	C0
155	OSD_2	41	BE
156	OSD_3	42	BD
157	OSD_4	43	BC
158	PANAROMA_OFF	73	8C

159	PANAROMA_ON	72	8D
160	PAUSE	03	FC
161	PGM	0F	F0
162	PICTURE	11	EE
163	PLAY	01	FE
164	POWER	45	BA
165	POWER_OFF	80	7F
166	POWER_ON	40	BF
167	PRESET_-	63	9C
168	PRESET_+	D2	2D
169	PREVIOUS_CH	CE	31
170	RANDOM	0E	F1
171	REAR_DLY_-	84	7B
172	REAR_DLY_+	44	BB
173	REAR_LVL_-	98	67
174	REAR_LVL_+	58	A7
175	REAR_L_DLY_-	87	78
176	REAR_L_DLY_+	88	77
177	REAR_L_LVL_-	93	6C
178	REAR_L_LVL_+	95	6A
179	REAR_R_DLY_-	89	76
180	REAR_R_DLY_+	8A	75
181	REAR_R_LVL_-	96	69
182	REAR_R_LVL_+	97	68
183	RECORD	08	F7
184	REPEAT	B6	49
185	RESET	BF	40
186	REVIEW	1C	E3
187	REWIND	06	F9
188	RIGHT	CF	30
189	S_+10	0A	F5 /*** use +10 ? ****/
190	SAT/TV	C6	39
191	SAVE	02	FD
192	SLEEP	CD	32
193	SET_AUDIO_TO	AF	50
194	SET_FORMAT_TO	B3	4C
195	SET_LEVEL_TO	AE	51
196	SET_MODE_TO	B2	4D
197	SET_VIDEO_TO	B1	4E
198	SETUP	BD	42
199	SIDE_L_DLY_-	82	7D
200	SIDE_L_DLY_+	83	7C
201	SIDE_L_LVL_-	8E	71
202	SIDE_L_LVL_+	8F	70
203	SIDE_LR_LVL_-	9B	64
204	SIDE_LR_LVL_+	9D	62
205	SIDE_R_DLY_-	85	7A
206	SIDE_R_DLY_+	86	79
207	SIDE_R_LVL_-	91	6E
208	SIDE_R_LVL_+	92	6D
209	SIMULCAST	50	AF
210	SOURCE_-	65	9A
211	SOURCE_+	66	99
212	ST_F/R	49	B6
213	ST_HALL	4A	B5
214	STATION_-	E8	17
215	STATION_+	18	E7
216	STEREO	47	B8
217	STEREO_3	4B	B4
218	STOP	05	FA
219	SUB_DLY_-	8B	74
220	SUB_DLY_+	8D	72

221	SUB_LVL_-	B8	47		
222	SUB_LVL_+	78	87		
223	SURROUND	53	AC		
224	SUBTITLE	B9	46		
225	TEST	A4	5B		
226	TITLE	BB	44		
227	THX	51	AE		
228	TREBLE_FRONT_-	9E	61		
229	TREBLE_FRONT_+	9F	60		
230	TREBLE_REAR_-	A3	5C		
231	TREBLE_REAR_+	A5	5A		
232	TREBLE_SIDE_-	A1	5E		
233	TREBLE_SIDE_+	A2	5D		
234	TUNE_-	D8	27		
235	TUNE_+	38	C7		
236	UNASSIGNED_1	D9	26 /***	AVAILABLE	***/
237	UNASSIGNED_2	DA	25 /***	AVAILABLE	***/
238	UNASSIGNED_3	DB	24 /***	AVAILABLE	***/
239	UNASSIGNED_4	DD	22 /***	AVAILABLE	***/
240	UNASSIGNED_5	DE	21 /***	AVAILABLE	***/
241	UNASSIGNED_6	DF	20 /***	AVAILABLE	***/
242	UNASSIGNED_7	E3	1C /***	AVAILABLE	***/
243	UNASSIGNED_8	E4	1B /***	AVAILABLE	***/
244	UNASSIGNED_9	E5	1A /***	AVAILABLE	***/
245	UNASSIGNED_10	E6	19 /***	AVAILABLE	***/
246	UNASSIGNED_11	E7	18 /***	AVAILABLE	***/
247	UNASSIGNED_12	E9	16 /***	AVAILABLE	***/
248	UNASSIGNED_13	FA	05 /***	AVAILABLE	***/
249	UNASSIGNED_14	FB	04 /***	AVAILABLE	***/
250	UNASSIGNED_15	FD	02 /***	AVAILABLE	***/
251	UNASSIGNED_16	FE	01 /***	AVAILABLE	***/
252	UP	74	8B		
253	VIDEO_SOURCE_-	5E	A1		
254	VIDEO_SOURCE_+	5F	A0		
255	VIEW	C7	38		
256	ZONE	FC	03		