

DENON
PROFESSIONAL

DN-700AV

Serial Command Protocol Guide
English

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Introduction

Thank you for purchasing the DN-700AV. At Denon Professional, performance and reliability mean as much to us as they do to you. That's why we design our equipment with only one thing in mind—to make your performance the best it can be.

Support

For the latest information about this product (documentation, technical specifications, system requirements, compatibility information, etc.) and product registration, visit denonpro.com.

For additional product support, visit denonpro.com/support.

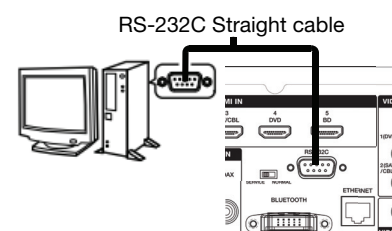
General

The serial remote control function is used by connecting the host machine such as a PC to the device (DN-700AV). The host can control the device by sending the Control command, and the host can detect the current device status by sending the Status Request command.

Two types of the connectivity, RS-232C and IP, are selectable. In addition, in this document, the controlled equipment is called the **Device** (DN-700AV) and the controlling equipment is called the **Host** (PC, etc.).

RS-232C Control

The host can control the device by connecting a D-sub 9-pin straight cable to the RS-232C connector on the rear panel of the device.



Specifications

| | |
|----------------------|------------------|
| Connector | 9-pin D-sub male |
| Transfer Rate | 9,600 bps |
| Data Length | 8 bits |
| Parity | None |
| Stop Bit | 1 bit |
| Flow Control | None |

Pin Arrangement

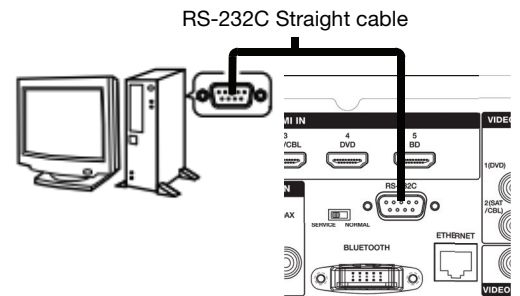
| Pin Number | Signal Name |
|------------|-------------|
| 1 | Ground |
| 6 | NC |
| 2 | TxD |
| 7 | NC |
| 3 | RxD |
| 8 | NC |
| 4 | NC |
| 9 | NC |
| 5 | S. Ground |

IP Control

The host can control the device by connecting a D-sub 9-pin straight cable to the RS-232C connector on the rear panel of the device.

Specifications

| | |
|----------------------|--------------------|
| Transmission | Full duplex |
| Connector | 9-pin D-sub female |
| Transfer Rate | 10 Mbps / 100 Mbps |
| TCP Port No. | 23 |
| Data Length | 135 bytes maximum |



Communication Protocol

Basic Specification

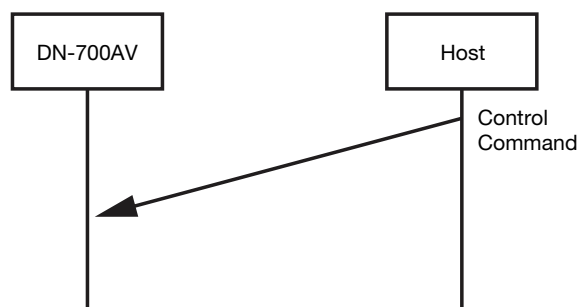
Communication with DN-700AV uses ASCII Code from 0x20 to 0x7F, which includes the alphabet, numbers 0–9, space (0x20), some signs, and carriage return (CR, 0x0D).

There are three types of communication used by DN-700AV:

1. Controlling DN-700AV from the host

When DN-700AV receives a control command from the host, the device executes the command.

See [Control Command Codes](#) for the complete list of command codes.

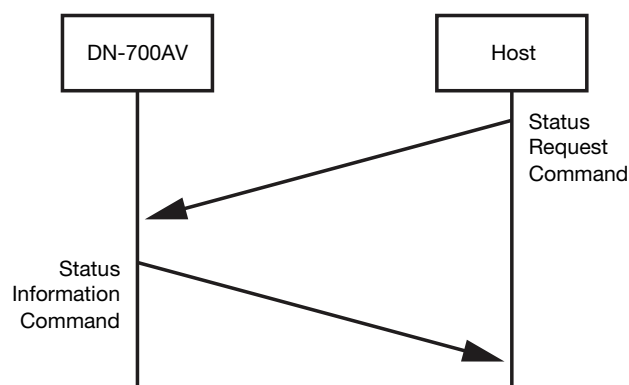


2. Sending status information for a status request command from the host

When DN-700AV receives a status request command (**Command + ? + CR [0x0D]**) from the host, the device responds with the status information command.

The response should be sent within 200 milliseconds (ms) of receiving the command.

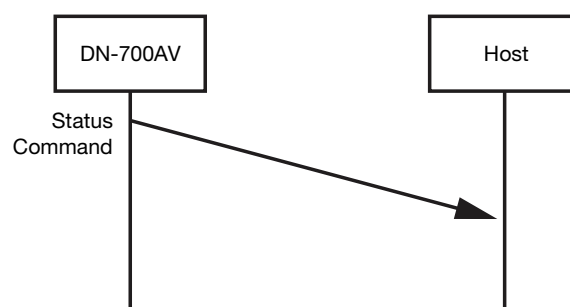
See [Status Request/Information Codes](#) for the complete list of status commands.



3. Sending status information automatically when there is a change to the device status

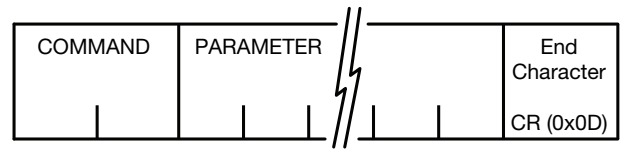
When a change to DN-700AV is made from the device, it automatically sends the status information to the host.

The form of the status commands is the same as the status information commands, [above](#).



Structure of Control Commands

Each packet of a control command begins with the **command** and ends with the **end character** (0x0D) as shown.



Command: ASCII Code of 2 characters

Parameter: ASCII Code (up to 25 characters)

Note: To confirm the status information of the device, send **Command + ? + CR** to the device from the host. The device status information is sent to the host.

Structure of Command Codes

| Item | Value (Hex value indicated in parentheses) |
|---------------|--|
| Command | Indicate a description of the command |
| Parameter | Indicate a description of the parameter |
| End Character | CR (0x0D) |

- When a command is received, the device will respond within 200 ms.
- Allow an interval of at least 200 ms between commands when sending a series of commands from the host. DN-700AV will not receive commands when the interval is less than 200 ms.
- The device can receive control command data during transmission of status command data.
- Do not send request commands from the host until the device returns a response.
- Wait 1 second after transmitting a Power On command (PWON<CR>) before transmitting the next command.

Control Command Codes

| CATEGORY | CONTENTS | | COMMAND | PARAMETER | CODE | NOTES |
|----------------|-------------------|-----------------------|---------|-----------|----------------|---|
| Power | Power On | | PW | ON | PWON<CR> | |
| | Standby | | | STANDBY | PWSTANDBY<CR> | |
| Master Volume | Up | | MV | UP | MVUP<CR> | |
| | Down | | | DOWN | MVDOWN<CR> | |
| | 0-90 | | | ** | MV**<CR> | ** : 0 to 90 by ASCII 0 (Max), 90 (Min) |
| Channel Volume | Front Lch | Up | CV | FL UP | CVFL UP<CR> | |
| | | Down | | FL DOWN | CVFL DOWN<CR> | |
| | | Direct change to **dB | | FL ** | CVFL **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) |
| | Front Rch | Up | | FR UP | CVFR UP<CR> | |
| | | Down | | FR DOWN | CVFR DOWN<CR> | |
| | | Direct change to **dB | | FR ** | CVFR **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) |
| | Center ch | Up | | C UP | CVC UP<CR> | |
| | | Down | | C DOWN | CVC DOWN<CR> | |
| | | Direct change to **dB | | C ** | CVC **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) |
| | Subwoofer ch | Up | | SW UP | CVSW UP<CR> | |
| | | Down | | SW DOWN | CVSW DOWN<CR> | |
| | | Direct change to **dB | | SW ** | CVSW **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) |
| | Surround Lch | Up | | SL UP | CVSL UP<CR> | |
| | | Down | | SL DOWN | CVSL DOWN<CR> | |
| | | Direct change to **dB | | SL ** | CVSL **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) |
| | Surround Rch | Up | | SR UP | CVSR UP<CR> | |
| | | Down | | SR DOWN | CVSR DOWN<CR> | |
| | | Direct change to **dB | | SR ** | CVSR **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) |
| | Surround Back Lch | Up | | SBL UP | CVSBL UP<CR> | |
| | | Down | | SBL DOWN | CVSBL DOWN<CR> | |
| | | Direct change to **dB | | SBL ** | CVSBL **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) |
| | Surround Back Rch | Up | | SBR UP | CVSBR UP<CR> | |
| | | Down | | SBR DOWN | CVSBR DOWN<CR> | |
| | | Direct change to **dB | | SBR ** | CVSBR **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) |

| CATEGORY | CONTENTS | | COMMAND | PARAMETER | CODE | NOTES |
|---------------|-------------------|---------------------|---------|-----------|----------------|------------------------|
| Channel Delay | Front Lch | Up | CD | FL UP | CDFL UP<CR> | |
| | | Down | | FL DOWN | CDFL DOWN<CR> | |
| | | Direct change to ** | | FL ** | CDFL **<CR> | ** : 0 to 100 by ASCII |
| | Front Rch | Up | | FR UP | CDFR UP<CR> | |
| | | Down | | FR DOWN | CDFR DOWN<CR> | |
| | | Direct change to ** | | FR ** | CDFR **<CR> | ** : 0 to 100 by ASCII |
| | Center ch | Up | | C UP | CDC UP<CR> | |
| | | Down | | C DOWN | CDC DOWN<CR> | |
| | | Direct change to ** | | C ** | CDC **<CR> | ** : 0 to 100 by ASCII |
| | Subwoofer ch | Up | | SW UP | CDSW UP<CR> | |
| | | Down | | SW DOWN | CDSW DOWN<CR> | |
| | | Direct change to ** | | SW ** | CDSW **<CR> | ** : 0 to 100 by ASCII |
| | Surround Lch | Up | | SL UP | CDSL UP<CR> | |
| | | Down | | SL DOWN | CDSL DOWN<CR> | |
| | | Direct change to ** | | SL ** | CDSL **<CR> | ** : 0 to 100 by ASCII |
| | Surround Rch | Up | | SR UP | CDSR UP<CR> | |
| | | Down | | SR DOWN | CDSR DOWN<CR> | |
| | | Direct change to ** | | SR ** | CDSR **<CR> | ** : 0 to 100 by ASCII |
| | Surround Back Lch | Up | | SBL UP | CDSBL UP<CR> | |
| | | Down | | SBL DOWN | CDSBL DOWN<CR> | |
| | | Direct change to ** | | SBL ** | CDSBL **<CR> | ** : 0 to 100 by ASCII |
| | Surround Back Rch | Up | | SBR UP | CDSBR UP<CR> | |
| | | Down | | SBR DOWN | CDSBR DOWN<CR> | |
| | | Direct change to ** | | SBR ** | CDSBR **<CR> | ** : 0 to 100 by ASCII |
| Output Mute | On | MU | ON | MUON<CR> | | |
| | Off | | OFF | MUOFF<CR> | | |
| Main-Zone | On | ZM | ON | ZMON<CR> | | |
| | Off | | OFF | ZMOFF<CR> | | |

| CATEGORY | CONTENTS | COMMAND | PARAMETER | CODE |
|-----------------------------|--------------|---------|-------------|------------------|
| Select Input Source | DVD | SI | DVD | SIDVD<CR> |
| | Dock | | DOCK | SIDOCK<CR> |
| | BD | | BD | SIBD<CR> |
| | SAT | | SAT | SISAT<CR> |
| | Game1 | | GAME1 | SIGAME1<CR> |
| | Game2 | | GAME2 | SIGAME2<CR> |
| | CD | | CD | SICD<CR> |
| | Media | | MEDIA | SIMEDIA<CR> |
| | Bluetooth | | BLUETOOTH | SIBLUETOOTH<CR> |
| | TV | | TV | SITV<CR> |
| | Tuner | TUNER | SITUNER<CR> | |
| Select Surround Mode | Direct | MS | DIRECT | MSDIRECT<CR> |
| | Stereo | | STEREO | MSSTEREO<CR> |
| | Movie | | MOVIE | MSMOVIE<CR> |
| | Music | | MUSIC | MSMUSIC<CR> |
| | Game | | GAME | MSGAME<CR> |
| | Neo:6 Cinema | | NEO6CINEMA | MSNEO6CINEMA<CR> |
| | Neo:6 Music | | NEO6MUSIC | MSNEO6MUSIC<CR> |
| Quick Select 1-4 Mode | Quick1 | | QUICK1 | MSQUICK1<CR> |
| | Quick2 | | QUICK2 | MSQUICK2<CR> |
| | Quick3 | | QUICK3 | MSQUICK3<CR> |
| | Quick4 | | QUICK4 | MSQUICK4<CR> |

| CATEGORY | CONTENTS | | COMMAND | PARAMETER | CODE | NOTES | | |
|-------------------|---|----------------------------------|---------|-------------|----------------|---|------------|--|
| SD Status | Set force Auto mode (Priority: HDMI > Digital > Analog) | | SD | AUTO | SDAUTO<CR> | | | |
| | Set force HDMI Input Mode | | | HDMI | SDHDMI<CR> | | | |
| | Set force Digital Input (Optical, Coaxial) Mode | | | DIGITAL | SDDIGITAL<CR> | | | |
| | Set force Analog Input Mode | | | ANALOG | SDANALOG<CR> | | | |
| Parameter Setting | Bass | Up | PS | BAS UP | PSBAS UP<CR> | | | |
| | | Down | | BAS DOWN | PSBAS DOWN<CR> | | | |
| | | Direct change to **dB | | BAS ** | PSBAS **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) | | |
| | Treble | Up | | TRE UP | PSTRE UP<CR> | | | |
| | | Down | | TRE DOWN | PSTRE DOWN<CR> | | | |
| | | Direct change to **dB | | TRE ** | PSTRE **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) | | |
| | DRC Direct Change | Auto | | DRC AUTO | PSDRC AUTO<CR> | | | |
| | | On | | DRC ON | PSDRC ON<CR> | | | |
| | | Off | | DRC OFF | PSDRC OFF<CR> | | | |
| | LFE | Up | | LFE UP | PSLFE UP<CR> | | | |
| | | Down | | LFE DOWN | PSLFE DOWN<CR> | | | |
| | | Direct change to **dB | | LFE ** | PSLFE **<CR> | ** : 0 to 10 by ASCII 0 (0 dB), 10 (-10 dB) | | |
| | Panorama | On | | PAN ON | PSPAN ON<CR> | | | |
| | | Off | | PAN OFF | PSPAN OFF<CR> | | | |
| | Dimension | Up | | DIM UP | PSDIM UP<CR> | | | |
| | | Down | | DIM DOWN | PSDIM DOWN<CR> | | | |
| | | Direct change to **dB | | DIM ** | PSDIM **<CR> | ** : 0 to 14 by ASCII 0 (-7), 7 (0), 14 (+7) | | |
| | Center Width | Up | | CEN UP | PSCEN UP<CR> | | | |
| | | Down | | CEN DOWN | PSCEN DOWN<CR> | | | |
| | | Direct change to **dB | | CEN ** | PSCEN **<CR> | ** : 0 to 7 by ASCII | | |
| | Zone 2 Control | Zone2 Mode Set and Select Source | | DVD | Z2 | DVD | Z2DVD<CR> | |
| | | | | Dock | | DOCK | Z2DOCK<CR> | |
| | | | | BD | | BD | Z2BD<CR> | |
| | | | | SAT/CBL | | SAT/CBL | Z2SAT<CR> | |
| CD | | | CD | Z2CD<CR> | | | | |
| Tuner | | | TUNER | Z2TUNER<CR> | | | | |

| CATEGORY | CONTENTS | COMMAND | PARAMETER | CODE | |
|---|---|----------------------|-----------|-----------------------|-----------------------|
| NET/USB/BT Control | "Cursor Up" Control | NS | 90 | NS90<CR> | |
| | "Cursor Down" Control | | 91 | NS91<CR> | |
| | "Cursor Left" Control | | 92 | NS92<CR> | |
| | "Cursor Right" Control | | 93 | NS93<CR> | |
| | "Enter" Control | | 94 | NS94<CR> | |
| | "Play" Control | | 9A | NS9A<CR> | |
| | "Stop" Control | | 9C | NS9C<CR> | |
| | "Skip Plus" Control | | 9D | NS9D<CR> | |
| | "Skip Minus" Control | | 9E | NS9E<CR> | |
| | Menu | | MENU | NSMEN<CR> | |
| | Return | | RETURN | NSRTN<CR> | |
| System Control | "Cursor Up" Control | MN | CUP | MNCUP<CR> | |
| | "Cursor Down" Control | | CDN | MNCDN<CR> | |
| | "Cursor Left" Control | | CLT | MNCLT<CR> | |
| | "Cursor Right" Control | | CRT | MNCRT<CR> | |
| | "Enter" Control | | ENT | MNENT<CR> | |
| | OSD Menu | | On | MEN ON | MNMEN ON<CR> |
| | | Off | MEN OFF | MNMEN OFF<CR> | |
| | Remote Control Lock On/Off | On | SY | REMOTE LOCK ON | SYREMOTE LOCK ON<CR> |
| | | Off | | REMOTE LOCK OFF | SYREMOTE LOCK OFF<CR> |
| | Panel Button (Except Master Vol.) Control Lock On | PANEL LOCK ON | | SYPANEL LOCK ON<CR> | |
| | Panel Button & Master Vol. Control Lock On | PANEL+V LOCK OFF | | SYPANEL+V LOCK ON<CR> | |
| Panel Button & Master Vol. Control Lock Off | PANEL LOCK OFF | SYPANEL LOCK OFF<CR> | | | |

Status Request/Information Codes

| Status Request Command (Host → DN-700AV) | | Status Information Command and Status Command (DN-700AV → Host) | | | NOTES | |
|---|-----------|---|-----------------------|--------------|--|--|
| REQUEST | COMMAND | CONTENTS | | COMMAND | | |
| Power | PW Status | PW?<CR> | | Power On | PWON<CR> | |
| | | | | Standby | PWSTANDBY<CR> | |
| Master Volume | MV?<CR> | **dB | | MV **<CR> | ** : 0 to 90 by ASCII 0 (Max), 90 (Min) | |
| Channel Volume | CV?<CR> | Front Lch | Direct change to **dB | CVFL **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) | |
| | | Front Rch | Direct change to **dB | CVFR **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (11 dB) | |
| | | Center ch | Direct change to **dB | CVC **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (12 dB) | |
| | | Subwoofer ch | Direct change to **dB | CVSW **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (13 dB) | |
| | | Surround Lch | Direct change to **dB | CVSL **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (14 dB) | |
| | | Surround Rch | Direct change to **dB | CVSR **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (15 dB) | |
| | | Surround Back Lch | Direct change to **dB | CVSBL **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (16 dB) | |
| | | Surround Back Rch | Direct change to **dB | CVSBR **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (17 dB) | |
| Output Mute | MU?<CR> | On | | MUON<CR> | | |
| | | Off | | MUOFF<CR> | | |
| Main-Zone | ZM?<CR> | On | | ZMON<CR> | | |
| | | Off | | ZMOFF<CR> | | |

| Status Request Command (Host → DN-700AV) | | Status Information Command and Status Command (DN-700AV → Host) | | COMMAND | NOTES |
|---|---------|---|--------------------------|-----------------|------------------------|
| REQUEST | COMMAND | CONTENTS | | | |
| Channel Delay | CD?<CR> | Front Lch | Direct change to **dB | CDFL **<CR> | ** : 0 to 100 by ASCII |
| | | Front Rch | Direct change to **dB | CDFR **<CR> | ** : 0 to 100 by ASCII |
| | | Center ch | Direct change to **dB | CDC **<CR> | ** : 0 to 100 by ASCII |
| | | Subwoofer ch | Direct change to **dB | CDSW **<CR> | ** : 0 to 100 by ASCII |
| | | Surround Lch | Direct change to **dB | CDSL **<CR> | ** : 0 to 100 by ASCII |
| | | Surround Rch | Direct change to **dB | CDSR **<CR> | ** : 0 to 100 by ASCII |
| | | Surround Back Lch | Direct change to **dB | CDSBL **<CR> | ** : 0 to 100 by ASCII |
| | | Surround Back Rch | Direct change to **dB | CDSBR **<CR> | ** : 0 to 100 by ASCII |
| Select Input Source | SI?<CR> | DVD | | SIDVD<CR> | |
| | | Dock | | SIDOCK<CR> | |
| | | BD | | SIBD<CR> | |
| | | SAT | | SISAT<CR> | |
| | | Game1 | | SIGAME1<CR> | |
| | | Game2 | | SIGAME2<CR> | |
| | | CD | | SICD<CR> | |
| | | Media | | SIMEDIA<CR> | |
| | | Bluetooth | | SIBLUETOOTH<CR> | |
| | | TV | | SITV<CR> | |
| | | Tuner | | SITUNER<CR> | |

| Status Request Command (Host → DN-700AV) | | Status Information Command and Status Command (DN-700AV → Host) | | | NOTES | |
|---|----------------------|---|---|---|---|--|
| REQUEST | COMMAND | CONTENTS | COMMAND | | | |
| Select Surround Mode | MS?<CR> | Direct | MSDIRECT<CR> | | | |
| | | Stereo | MSSTEREO<CR> | | | |
| | | Movie | MSMOVIE<CR> | | | |
| | | Music | MSMUSIC<CR> | | | |
| | | Game | MSGAME<CR> | | | |
| | | Neo:6 Cinema | MSNEO6CINEMA<CR> | | | |
| | | Neo:6 Music | MSNEO6MUSIC<CR> | | | |
| | | Hall | MSHALL<CR> | | | |
| | | Room | MSROOM<CR> | | | |
| | | Stadium | MSSTADIUM<CR> | | | |
| | | Theater | MSTHEATER<CR> | | | |
| | Quick Select Mode | MSQUICK?<CR> | Not Select | MSQUICK0<CR> | | |
| | | | Quick1 | MSQUICK1<CR> | | |
| | | | Quick2 | MSQUICK2<CR> | | |
| Quick3 | | | MSQUICK3<CR> | | | |
| Quick4 | | | MSQUICK4<CR> | | | |
| SD Status | SD?<CR> | Set force HDMI Input Mode | SDHDMI<CR> | | | |
| | | Set force Digital Input (Optical, Coaxial) Mode | SDDIGITAL<CR> | | | |
| | | Set force Analog Input Mode | SDANALOG<CR> | | | |
| Parameter Setting | Bass | PSBAS ?<CR> | Direct change to **dB | PSBAS **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) | |
| | Treble | PSTRE ?<CR> | Direct change to **dB | PSTRE **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) | |
| | DRC Direct Change | PSDRC ?<CR> | Auto | | PSDRC AUTO<CR> | |
| | | | On | | PSDRC ON<CR> | |
| | | | Off | | PSDRC OFF<CR> | |
| | LFE | PSLFE ?<CR> | Direct change to **dB | PSLFE **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) | |
| | Panorama | PSPAN ?<CR> | On | | PSPAN ON<CR> | |
| | | | Off | | PSPAN OFF<CR> | |
| Dimension | PSDIM ?<CR> | Direct change to **dB | PSDIM **<CR> | ** : 40 to 60 by ASCII 40 (-10 dB), 50 (0 dB), 60 (10 dB) | | |
| Center Width | PSCEN ?<CR> | Direct change to **dB | PSCEN **<CR> | ** : 0 to 7 by ASCII | | |
| Zone2 Control | Status | Z2?<CR> | Zone2 Mode Set, and Select Source | DVD | Z2DVD<CR> | |
| | | | | Dock | Z2DOCK<CR> | |
| | | | | BD | Z2BD<CR> | |
| | | | | SAT/CBL | Z2SAT<CR> | |
| | | | | CD | Z2CD<CR> | |
| | | | | Tuner | Z2TUNER<CR> | |

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