

Meridian 861v4 RS232 Interface.

General Information

The RS232 interface for the 861 can be operated from any terminal that operates at 9600 baud with 1 start bit, 1 stop bit and no parity. Commands take the form of 2 ASCII characters, in some cases followed by a signed argument. All characters are echoed by the processor. A carriage return character will execute the command and backspace is also implemented. When a command is executed, the 861 will return 20 characters.

Basic Functions

The following tables list the basic commands available and show examples of the messages returned. In each case the message returned via RS232 corresponds with the display on the front panel of the processor.

| Source Commands | | |
|-----------------|---------------------------------|---------------------|
| RS232 Command | Description | Message Returned |
| CD | Select CD source | CD Trifield 65 |
| RD | Select Radio | Radio Music 65 |
| LP | Select LP | LP Music 65 |
| TV | Select TV | TV TV Logic 65 |
| T1 | Select Tape 1 | Tape1 Music 65 |
| T2 | Select Tape 2 | Tape2 Music 65 |
| CR | Select CDR | CDR Trifield 65 |
| CB | Select Cable | Cable Pro Logic 65 |
| DV | Select DVD | DVD Pro Logic 65 |
| V1 | Select VCR 1 | VCR1 Pro Logic 65 |
| V2 | Select VCR 2 | VCR2 Pro Logic 65 |
| LD | Select Laser Disc | LDisc THX Cinema 65 |
| COnn | Select Copy source ¹ | Copy Ldisc |

| Volume Commands | | |
|-----------------|---------------------|------------------|
| RS232 Command | Description | Message Returned |
| VP | Volume + | CD Trifield 66 |
| VM | Volume - | CD Trifield 64 |
| VNnn | Go to volume (1-99) | CD Trifield 87 |
| MU | Mute | Mute |

| General Commands | | |
|------------------|--------------------------|------------------|
| RS232 Command | Description | Message Returned |
| SB | Standby | . |
| MR | Menu Right | CD Centre +OdB |
| ML | Menu Left | CD Balance <O> |
| MP | Menu Plus (Up) | CD Balance <1 |
| MM | Menu Minus (Down) | CD Balance 1> |
| PNnn | Goto preset ² | CD Trifield 65 |

| Additional Source Commands – Correspond to MSR4 keys | | | |
|--|-------------------|---------------|----------------|
| RS232 Command | Description | RS232 Command | Description |
| PL | Play | rp | AB Repeat |
| ST | Stop | AB | AB Repeat |
| PS | Pause | PH | Phase |
| RP | Repeat | TB | T (MSR 3) |
| NE | Next | #B | # button |
| PR | Previous | CH | Chapter (MSR3) |
| DI | Display | SE | Setup |
| SR | Store | ME | Menu |
| CL | Clear | RT | Return |
| DP | Decimal Point | EN | Enter |
| FF | Fast Forward | TM | Top menu |
| FB | Fast Back | NP | Next page |
| N0 – N9 | Number keys 0 - 9 | PP | Previous page |
| OP | Open | cl | Fn Clear |
| MO | Mono | sr | Fn Store |
| SL | Slow | di | Fn Display |
| BA | Band | mu | Fn Mute |
| AU | Audio | mp | Fn Menu U |
| SU | Subtitle on/off | mm | Fn Menu D |
| su | Subtitle choice | ml | Fn Menu L |
| OS | OSD | mr | Fn Menu R |
| RC | Record | vp | Fn Volume Up |
| AN | Angle | vm | Fn Volume Down |

| 1. Source argument | |
|--------------------|-------------|
| RS232 Command | Description |
| CO0 | Copy CD |
| CO1 | Copy Radio |
| CO2 | Copy LP |
| CO3 | Copy TV |
| CO4 | Copy Tape1 |
| CO5 | Copy Tape2 |
| CO6 | Copy CDR |
| CO7 | Copy Cable |
| CO8 | Copy DVD |
| CO9 | Copy VCR1 |
| CO10 | Copy VCR2 |
| CO11 | Copy LDisc |
| CO12 | Copy Source |
| CO13 | Copy Mute |

| 2. Goto Preset argument | | | |
|-------------------------|-------------|-------------------------------------|-------------|
| RS232 Command | Description | RS232 Command | Description |
| PN0 | Direct | PN13 | PLII THX |
| PN1 | Music | PN14 | Discrete |
| PN2 | Trifield | PN15 | Cinema |
| PN3 | Ambisonics | PN16 | EZ |
| PN4 | Super | PN17 | EX |
| PN5 | Stereo | PN18 | THX |
| PN6 | Mulogic | PN19 | THX EX |
| PN7 | n/a | PN20 | THX Ultrall |
| PN8 | n/a | PN21 | THX Music |
| PN9 | Mono | PN22 | n/a |
| PN10 | TV Logic | PN23 | n/a |
| PN11 | PLII Music | Subsequent values call user presets | |
| PN12 | PLII Movie | | |

Meridian Menu Commands

The RS232 interface allows direct access to menu commands on as per version 3 Meridian 861. The existing menu commands (ML, MR, MM, MP) have not been replaced but an extra command sequence allows direct access to any menu and for a value to be entered into that menu. It must be noted that not all menus will be available for direct access at all times. For example it is not possible to access the Centre Delay while listening in Direct mode. In these cases an error message will be returned.

The command string 'APn_{xx}' sets menu 'nn' to value 'xx', where both are hexadecimal numbers and 'xx' is two's complement allowing negative values to be represented. The table below gives details. When using this feature you should note that some menus work in half unit steps and that entering invalid numbers will return an error message.

Example: AP0102 sets the treble to +1dB
 AP0103 sets the treble to +1.5dB

| Menu | Hex | Steps | Min. | hex | Max. | hex | Restrictions |
|------------------|-----|-------|--------|-----|-----------|-----|---------------------------------|
| Preset | 00 | 1 | 0 | 00 | see above | - | |
| RC Preset | 32 | - | 0 | 00 | 12 | - | Only for presets defined in MRC |
| Treble | 01 | 0.5dB | -10dB | EC | +10dB | 14 | |
| Bass | 02 | 0.5dB | -5dB | F6 | +5dB | 0A | |
| Phase | 03 | - | Off | 00 | On | 01 | |
| LR balance | 04 | - | 10L | F6 | 10R | 0A | |
| Lipsync | 1D | 0.5ms | 0ms | 00 | 30ms | 3C | |
| Rear level | 05 | - | 30R | E2 | 10F | 0A | |
| Centre level | 09 | 0.5dB | -3dB | FA | 3dB | 06 | |
| Centre delay | 0A | 0.5ms | -2.5ms | FB | 5ms | 0A | |
| Centre EQ | 0B | - | 0 | 00 | 3 | 03 | |
| Rear delay | 06 | 0.5ms | 0ms | 00 | 30ms | 3C | Music modes & Discrete |
| Rear delay | 2C | 0.5ms | 0 | 00 | 30 | 3C | 5.1 modes & PLII Music |
| Rear delay | 44 | 0.5ms | 10ms | 14 | 25ms | 32 | PLII movie & PLII THX |
| Rear filter | 07 | - | 0 | 00 | 3 | 03 | Music modes & Cinema |
| Rear filter | 12 | - | 0 | 00 | 3 | 03 | Ambisonics & Superstereo |
| Side level | 19 | 1dB | -30dB | E2 | +10dB | 0A | |
| Side delay | 1A | 0.5ms | 0 | 00 | 30ms | 3C | Music modes only |
| Side delay | 2D | 0.5ms | 0 | 00 | 30 | 3C | 5.1 modes & PLII Music |
| Side delay | 45 | 0.5ms | 10ms | 14 | 25ms | 32 | PLII movie & PLII THX |
| Side filter | 16 | - | 0 | 00 | 3 | 03 | Ambisonics & Superstereo |
| Side filter | 1B | - | 0 | 00 | 3 | 03 | Music modes & Cinema |
| Axis control | 3C | 1dB | -2 | FE | +3 | 03 | If any DSP speakers |
| HS out | 37 | - | Off | 00 | On | 01 | 861 and 568 only |
| Width | 0E | 0.1 | 0 | 00 | 1.5 | 0F | Trifield only |
| Width | 0F | 0.1 | 0 | 00 | 1.0 | 0A | Super Stereo only |
| PLII Width | 40 | - | 0 | 00 | 7 | 07 | PLII Music only |
| Dimension | 3D | - | 0 | 00 | 6 | 06 | PLII Music only |
| Panorama | 3E | - | Off | 00 | On | 01 | PLII Music only |
| PLII steering | 43 | - | 0 | 00 | 2 | 02 | 7-ch Logic modes only |
| Prologic legacy | 3F | - | Off | 00 | On | 01 | PLII Movie & PLII THX |
| Party mode | 28 | - | Off | 00 | On | 01 | Mono only |
| Academy filter | 13 | - | Off | 00 | On | 01 | Mono only |
| No. of surrounds | 1E | - | 0 | 00 | 2 | 02 | Music modes & Cinema |
| No. of surrounds | 24 | - | 0 | 00 | 2 | 02 | 5.1 modes only (not Discrete) |
| Compression | 29 | - | 0 | 00 | 5 | 05 | 5.1 modes only |
| Contrast | 2E | - | 0 | 00 | 15 | 0F | 861 only |
| Brightness | 2F | - | 0 | 00 | 15 | 0F | 861 only |
| Position | 11 | - | M | 00 | A | 06 | Ambisonics only |
| OSD position | 0C | - | 0 | 00 | 3 | 03 | |
| Roll | 14 | - | 0 | 00 | 3 | 03 | TV logic only |
| Yaw | 15 | - | 0 | 00 | 3 | 03 | TV logic only |
| Mono input | 0D | - | 0 | 00 | 3 | 03 | Mono only |
| 2+2+2 | 46 | - | 0 | 00 | 4 | 04 | Discrete only* |
| LFE level | 4A | 1dB | -18dB | 01 | +10dB | 1D | 5.1 modes only |

*Options available will depend on speaker layout.

Some adjustments to menus will require the user to take note of what DSP mode the unit is in before making any change. These are noted in the "restrictions" column of the table.

Example: Rear channel delay can be adjusted using AP0604, AP2C04 or AP4404, which depends on whether 861 is in Music mode, Logic mode or 5.1 mode.

Reading Current Status

It is possible to poll the 861 to find the current status of any menu. The command string 'APnnT' tests the value of menu 'nn', where 'nn' is the hexadecimal number given for each menu in the table above. When polled, the product returns a string via its RS232 port only that confirms the menu being tested and its value. Menus that have ON and OFF settings will return '00' for OFF and '01' for ON.

Example:

| | |
|--------|--|
| AP0204 | sets bass to +2dB |
| AP02T | tests the current status of the Bass menu |
| TM0204 | is returned by 861 confirming that Bass is set to +2dB |

If the number of the menu being polled is invalid the product will return an error message. The 861 will also return an error message if the user tries to poll menu status while accessing a menu.

Status Output

861 uses status output to give the RS232 user information about menu status, volume changes, standby state, source changes and changes in input stream. The RS232 user can use this information in many different ways; for example it can be used to confirm changes to menus without the need to poll the processor for this information.

- To enable status output enter the command 'APON' followed by a carriage return. 861 will return On.
- To disable status output enter the command 'APOFF' followed by a carriage return. 861 will return Off.

With status output enabled;

- When a menu is adjusted using the 'Apnnxx' command 861 returns a message detailing which menu has been adjusted and the new value of that menu. The message takes the form '!Mnnxx', where 'nn' represents the menu number as given in the table above and 'xx' represents the new value of that parameter.
- When the system volume is changed 861 outputs a message via RS232 specifying the new volume level. The message takes the form '!Vxx', where 'xx' represents the new volume as a decimal number.
- When 861 detects a change in input stream it communicates this to the RS232 user with the message '!lxx', where 'xx' is a decimal number representing the stream type as described in the table below.

It should be noted that input streams can change both with and without the source being changed (e.g. the introduction on a DVD-Video may be a PCM format signal while the main movie is AC-3).

- When 861 receives a command to change source (either from the front panel keys, IR sensor or RS232 port) it will send out an RS232 message to indicate this change. The message takes the form '!S'. This message is only sent once a source has been selected and is not sent while the user scrolls through sources.

As the user scrolls through sources the names of those sources will be output via RS232 (in the same way that they are displayed on the front panel).

Once the 'S' message has been sent and if the now selected source has a different input stream to the previous source 861 will send an '!lxx' message as described above.

The final message sent to confirm the change of a source gives the name of the active source, the active DSP mode and the volume number, e.g. "CD Trifield 65".

| Input stream status | | | |
|---------------------|------------------------|----|-------------------------|
| xx | Stream | xx | Stream |
| 0 | n/a | 10 | MPEG 2/0 |
| 1 | PCM | 11 | DTS Data |
| 2 | n/a | 12 | DTS Data 2/0 |
| 3 | DTS (audio marked) | 13 | MLP Data |
| 4 | DTS 2/0 (audio marked) | 14 | MLP 2/0 |
| 5 | MLP (audio marked) | 15 | MLP Data B format |
| 6 | MLP 2/0 (audio marked) | 16 | MLP B format |
| 7 | AC-3 | 17 | AC-3 (audio marked) |
| 8 | AC-3 2/0 | 18 | AC-3 2/0 (audio marked) |
| 9 | MPEG | | |

Text Entry

This feature allows the RS232 user to input text to be displayed by the 861 during normal operation. Text is entered in to a 20 character buffer where it is held awaiting a “display text” command that dictates the length of time the contents of the buffer are displayed for – this can be up to 6 seconds. Each time the display text command is executed all 20 characters, blank or otherwise, are shown on both the front panel and OSD. The display command is also returned on RS232.

Text entry consists of four commands.

- Enter text to buffer.

Text is entered in to the memory buffer in sets of four characters. Use the command ‘TExxxx’, where ‘xxxx’ is one group of four ASCII characters. To display the full 20 characters the ‘TExxxx’ will need to be implemented five times.

- Display text.

The amount of time the text is displayed for can be varied up to 6 seconds in half-second intervals. Use the command ‘TDnn’, where ‘nn’ represents the length of time the text should be displayed for, to achieve this.

- Modify text.

The command ‘TPnn’ is used to set the cursor for the next string of four characters.

- Clear text.

To clear any text held in the buffer; enter the command ‘TC’. This also resets the cursor to the first character.

Example: The example beneath uses all four text-entry commands to Display “Door bell” for 6 seconds.

```
TC
TEDoor
TE bel
TEI
TD12
```

This message could be sent repeatedly and for a shorter time (e.g. TD2), to flash the text on the OSD.