



MODEL TDAI-2170  
INTEGRATED AMPLIFIER

EXTERNAL CONTROL MANUAL

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## Serial Settings

The serial port settings are always 8 data bits, no parity and one stop bit with a baud rate of 115200.

### Commands and Requests

All commands and requests start with the ‘!’ character.

Commands end with a combination of the Carriage Return character (ascii 0x0D, referred to as <CR> in this document) and Line Feed (ascii 0x0A, <LF>). Often, a single <CR> is used, but because different systems handle these characters differently, it is also allowed to end with <LF>, <CR><LF> or even <LF><CR>. In this document, it is expected to be <CR><LF>, but all of these combinations are allowed instead.

Requests end with the character ‘?’ and <CR><LF> (or any <CR><LF> combination as above).

Both commands and requests can have parameters, these are enclosed in parenthesis.

Replies to a request are formatted as the request with the reply values as parameters. Replies always use the <CR><LF> combination of line-end characters.

Commands and requests are not case sensitive.

In addition, it is possible to subscribe to status changes from the device. In this situation, whenever a status has changed (new source, new voicing etc.) the device will send a status. This status is formed exactly like a reply to a request, except it is followed by the character ‘!’ before the <CR><LF> to indicate, that this is an asynchronous message, not a reply.

|                                   |                             |
|-----------------------------------|-----------------------------|
| <b>!COMMAND</b> <CR><LF>          | Command                     |
| <b>!COMMAND(param)</b> <CR><LF>   | Command with parameter      |
| <b>!REQUEST?</b> <CR><LF>         | Request                     |
| <b>!REQUEST(param)?</b> <CR><LF>  | Request with parameter      |
| <b>!REQUEST(reply)</b> <CR><LF>   | Reply to a request          |
| <b>!REQUEST(status)!</b> <CR><LF> | A status, which has changed |

Commands and requests which are malformed or has invalid parameters will just be ignored. If a command or request is correct but followed by garbage before the line end character(s), the command or request will be executed and the garbage ignored.

## Requests

The following requests are available on the TDAI-2170:

| Request name                  | Action   | Reply   |
|-------------------------------|--|---|
| <b>!VER?</b> <CR><LF>         | Requests the SW version  | <b>!VER(1.23a)</b> <CR><LF><br>If the version is 1.23a  |
| <b>!DEVICE?</b> <CR><LF><br>> | Requests the type of device  | A TDAI-2170 will reply with:<br><b>!DEVICE(TDAI-2170)</b> <CR><LF>  |
| <b>!PWR?</b> <CR><LF>         | Requests the current power state.  | <b>!PWR(OFF)</b> <CR><LF><br>or<br><b>!PWR(ON)</b> <CR><LF>   |
| <b>!VOL?</b> <CR><LF>         | Requests the current volume.   | <b>!VOL(v)</b> <CR><LF><br>Where the value of v is the volume ranging from -999 to 120 in steps of 0.1 dB.  |
| <b>!MUTE?</b> <CR><LF>        | Requests the mute status.  | <b>!MUTE(ON)</b> <CR><LF><br>or<br><b>!MUTE(OFF)</b> <CR><LF>   |
| <b>!SRC?</b> <CR><LF>         | Requests the currently selected input source.  | <b>!SRC(n)</b> <CR><LF><br>Where n is the currently selected source. For possible values see “Appendix A: Input Source Numbering.”  |
| <b>!SRCNAME(n)?</b> <CR><LF>  | Requests the name of input source number n. For legal values of n see the table in “Appendix A: Input Source Numbering.” | <b>!SRCNAME(n,Name)</b> <CR><LF><br>Where n is the number of the input source and “Name” is a string with the name of the requested input source.   |
| <b>!SRCENABLED?</b> <CR><LF>  | Requests the list of input sources which are enabled by the user.  | <b>!SRCENABLED(b)</b> <CR><LF><br>Where b is a bitmask indicating which source inputs are enabled by the user. Bit0 (LSB, rightmost bit in the string) indicates the status for source input 0 etc. |
| <b>!VOI?</b> <CR><LF>         | Requests the currently selected voicing.   | <b>!VOI(n)</b> <CR><LF><br>Where n is the selected voicing. For possible values see “Appendix B: Voicing Numbering”   |

|   |  |  |
|---|--|--|
| <b>!VOINAME(n)?&lt;CR&gt;&lt;LF&gt;</b> | Requests the name of voicing number n. For legal values of n see “Appendix B: Voicing Numbering” | <b>!VOINAME(n,Name)&lt;CR&gt;&lt;LF&gt;</b><br>Where n is the number of the voicing and “Name” is a string with the name of the requested voicing.   |
| <b>!VOIENABLED?&lt;CR&gt;&lt;LF&gt;</b> | Requests the list of which voicings are enabled in the device.                                   | <b>!VOIENABLED(b)&lt;CR&gt;&lt;LF&gt;</b><br>Where b is a bitmask (16 bits) indicating which voicings are enabled by the user. Bit0 (LSB, the rightmost bit in the string) indicates the status for Voicing 0 (Neutral), Bit1 for Voicing 1 etc. Voicing 0 (Neutral) is always enabled.  |
| <b>!RP?&lt;CR&gt;&lt;LF&gt;</b>         | Requests the currently selected RoomPerfect position.  | <b>!RP(n)&lt;CR&gt;&lt;LF&gt;</b><br>Where n is the currently selected position.<br>0 = Bypass<br>1-8 = Focus positions 1-8<br>9 = Global  |
| <b>!RPSTATUS?&lt;CR&gt;&lt;LF&gt;</b>   | Requests the status of filters in the RoomPerfect module.  | <b>!RPSTATUS(b)&lt;CR&gt;&lt;LF&gt;</b><br>Where b is a bitmask (8 bits) indicating which focus positions are present. Bit0 (LSB, the rightmost bit in the string) indicates whether Focus1 is present, Bit1 indicates Focus2 etc. If any Focus positions are present, the Global filter will also be available.<br><u>Example:</u><br><b>!RPSTATUS(00000101)</b><br>In this example Focus 1 and Focus 3 are present, and since there are focus positions, the global position will also be present. |

## Commands

The following commands are available on the TDAI-2170.

| Command name               | Action   |
|----------------------------|--|
| <b>!OFF</b> <CR><LF>       | Turns the amplifier off.   |
| <b>!ON</b> <CR><LF>        | Turns the amplifier on.  |
| <b>!PWR</b> <CR><LF>       | Toggles power on the amplifier. Same functionality as the standby button on the front.   |
| <b>!VOLDN</b> <CR><LF>     | Decreases the volume 1 step (0.5 dB).  |
| <b>!VOLUP</b> <CR><LF>     | Increases the volume 1 step (0.5 dB).  |
| <b>!VOLCH(d)</b> <CR><LF>  | Changes the volume by the deltavalue d. An example to turn down the volume by 3.2 dB:<br><b>!VOLCH(-32)</b> <CR><LF><br>Note: This function will handle volume in steps of 0.1 dB!                               |
| <b>!VOL(n)</b> <CR><LF>    | Sets the volume to the value n, where n is between -999 and 120. If n is higher than the maximum volume, volume will be set to the maximum volume.<br>Note: This function will handle volume in steps of 0.1 dB! |
| <b>!MUTEON</b> <CR><LF>    | Mutes the amplifier.   |
| <b>!MUTEOFF</b> <CR><LF>   | Demutes the amplifier.   |
| <b>!MUTE</b> <CR><LF>      | Toggles mute.  |
| <b>!SRCDN</b> <CR><LF>     | Selects the previous enabled input source. Same functionality as rotating the input selector on the front counterclockwise.  |
| <b>!SRCUP</b> <CR><LF>     | Selects the next enabled input source. Same functionality as rotating the input selector on the front clockwise.   |
| <b>!SRC(n)</b> <CR><LF>    | Selects the source n if it is enabled. For valid values of n refer to “Appendix A: Input Source Numbering.”  |
| <b>!SRCALL(n)</b> <CR><LF> | Selects the source n even if it is not enabled. For valid values of n refer to “Appendix A: Input Source Numbering.”   |
| <b>!RPDN</b> <CR><LF>      | Selects the previous RoomPerfect position.   |
| <b>!RPUP</b> <CR><LF>      | Selects the next RoomPerfect position.   |
| <b>!RPBP</b> <CR><LF>      | Selects the RoomPerfect Bypass position, if it is enabled.   |

|   |   |
|---|---|
| <b>!RPF</b> <b>OC</b> (n)<CR><LF>                       | Selects RoomPerfect focus position n, where n is between 1 and 8.   |
| <b>!RPG</b> <b>LOB</b> <CR><LF>                         | Selects the RoomPerfect Global position.  |
| <b>!VOID</b> <b>N</b> <CR><LF>                          | Selects the previous voicing.   |
| <b>!VOI</b> <b>UP</b> <CR><LF>                          | Selects the next voicing  |
| <b>!VOI</b> (n)<CR><LF>                                 | Selects voicing number n. For possible values see “Appendix B: Voicing Numbering”   |
| <b>!SUB</b> <b>SCRIBE</b> <CR><LF>                      | <p>Activates subscription mode. After sending this command, status changes in the device will cause a status information to be sent. The following status changes will cause a status information:</p> <ul style="list-style-type: none"> <li>• Input changed</li> <li>• RoomPerfect position changed</li> <li>• Voicing changed</li> <li>• Device has powered on or off</li> <li>• Device has been muted or demuted</li> </ul> <p>Subscription mode is active until power has been removed from the device or unsubscribe command has been received.</p> |
| <b>!UN</b> <b>SUB</b> <b>SCRIBE</b> <CR><LF>            | Deactivates subscription mode. No more status information will be received.   |
| <b>!SUB</b> <b>SCRIBE</b> <b>VOL</b> <CR><LF>           | <p>Activates subscription mode for volume information. After receiving this command, the device will send information whenever the volume has been changed on the device. Volume subscription mode is active until power has been removed from the device or unsubscribevol command has been received.</p>  |
| <b>!UN</b> <b>SUB</b> <b>SCRIBE</b> <b>VOL</b> <CR><LF> | Deactivates volume subscription mode.   |

## Appendix A: Input Source Numbering

The following table shows which numbers corresponds to which inputs.

| <b>Number</b> | <b>Source Input</b>               |
|---------------|-----------------------------------|
| <b>0</b>      | Coax Digital 1                    |
| <b>1</b>      | Coax Digital 2                    |
| <b>2</b>      | Optical Digital 3                 |
| <b>3</b>      | Optical Digital 4                 |
| <b>4</b>      | Optical Digital 5                 |
| <b>5</b>      | Optical Digital 6                 |
| <b>6</b>      | USB Input                         |
| <b>7</b>      | HDMI Input 1                      |
| <b>8</b>      | HDMI Input 2                      |
| <b>9</b>      | HDMI Input 3                      |
| <b>10</b>     | HDMI Input 4                      |
| <b>11</b>     | HDMI Audio Return Channel (ARC)   |
| <b>12</b>     | Analog 1 (RCA on main board)      |
| <b>13</b>     | Analog 2 (RCA on main board)      |
| <b>14</b>     | Analog 3 (RCA on extension board) |
| <b>15</b>     | Analog 4 (RCA on extension board) |
| <b>16</b>     | Analog 5 (RCA on extension board) |
| <b>17</b>     | Analog 6 (XLR on extension board) |

# Appendix B: Voicing Numbering

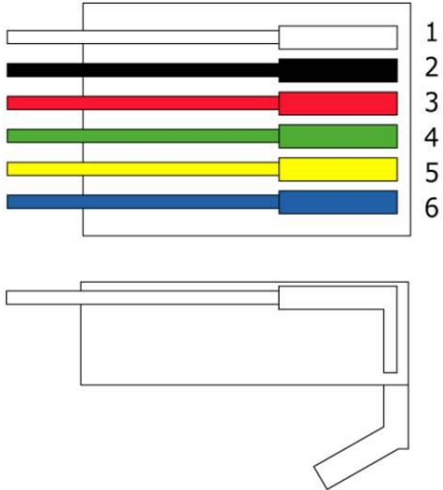
This table shows which numbers corresponds to which voicings.

| <b>Number</b> | <b>Voicing</b> |
|---------------|----------------|
| <b>0</b>      | Neutral        |
| <b>1</b>      | Music 1        |
| <b>2</b>      | Music 2        |
| <b>3</b>      | Relaxed        |
| <b>4</b>      | Open           |
| <b>5</b>      | Open Air       |
| <b>6</b>      | Soft           |
| <b>7</b>      | Action 1       |
| <b>8</b>      | Action 2       |
| <b>9</b>      | Movie          |
| <b>10</b>     | Action Movie   |
| <b>11</b>     | News           |
| <b>12</b>     | Bass 1         |
| <b>13</b>     | Bass 2         |



# Appendix C: PIN OUT

PIN OUT DIAGRAM FOR RS232 CABLE



Pin 4 = GND  
Pin 5 = Rx  
Pin 6 = Tx

# IR Codes / TDAI-2170

| Command            | NEC1 Code     |
|--------------------|---------------|
| 1                  | 0x10EF 0x00FF |
| 2                  | 0x10EF 0x01FE |
| 3                  | 0x10EF 0x02FD |
| 4                  | 0x10EF 0x03FC |
| 5                  | 0x10EF 0x04FB |
| 6                  | 0x10EF 0x05FA |
| 7                  | 0x10EF 0x06F9 |
| 8                  | 0x10EF 0x07F8 |
| 9                  | 0x10EF 0x08F7 |
| UP                 | 0x10EF 0x0AF5 |
| DOWN               | 0x10EF 0x0BF4 |
| RIGHT              | 0x10EF 0x0CF3 |
| LEFT               | 0x10EF 0x0DF2 |
| ANALOG             | 0x10EF 0x0EF1 |
| STANDBY            | 0x10EF 0x0FF0 |
| VOL_DOWN           | 0x10EF 0x10EF |
| MUTE               | 0x10EF 0x13EC |
| MENU               | 0x10EF 0x16E9 |
| ENTER              | 0x10EF 0x19E6 |
| VOL_UP             | 0x10EF 0x1AE5 |
| DIGITAL            | 0x10EF 0x1FE0 |
| 0 0x10EF           | 0x30CF        |
| CH_DOWN            | 0x10EF 0x31CE |
| CH_UP              | 0x10EF 0x32CD |
| INFO               | 0x10EF 0x33CC |
| ON                 | 0x10EF 0x807F |
| OFF                | 0x10EF 0x817E |
| DIG_1_COAX         | 0x10EF 0x916E |
| DIG_2_COAX         | 0x10EF 0x926D |
| DIG_3_OPT          | 0x10EF 0x936C |
| DIG_4_OPT          | 0x10EF 0x946B |
| DIG_5_OPT          | 0x10EF 0x956A |
| DIG_6_OPT          | 0x10EF 0x9669 |
| DIG_7_USB          | 0x10EF 0x9768 |
| DIG_8_HDMI         | 0x10EF 0x9867 |
| DIG_9_HDMI         | 0x10EF 0x9966 |
| DIG_10_HDMI 0x10EF | 0x9A65        |
| DIG_11_HDMI 0x10EF | 0x9B64        |
| DIG_12_HDMI_ARC    | 0x10EF 0x9C63 |
| ANA_1_RCA          | 0x10EF 0x9D62 |
| ANA_2_RCA          | 0x10EF 0x9E61 |
| ANA_3_RCA_HD       | 0x10EF 0x9F60 |
| ANA_4_RCA_HD       | 0x10EF 0xA05F |
| ANA_5_RCA_HD       | 0x10EF 0xA15E |
| ANA_6_XLR          | 0x10EF 0xA25D |