LYNGDORF

LYNGDORF AUDIO TDAI-3400

EXTERNAL CONTROL MANUAL

Introduction

The purpose of this document is to describe how the external control interface of the device works.

Home Automation System Integration

The Lyngdorf Audio TDAI-3400 is compatible with home automation systems via the RS232 and network connectors on the rear socket panel. The TDAI-3400's IR and trigger connections can also be programmed for use in a home automation system.

Control Via Network

Open a TCP connection on port 84 and use the control protocol as described in this document. For control from a PC, use Telnet, Putty, or similar programs to open the TCP connection.

If you do not know the IP address of the TDAI-3400 on your local network, the TDAI-3400 supports Apple´s Bonjour Discovery service, which must be on the computer you want to set up the TDAI-3400 with. The software is built-in as part of the Apple OS X operating system. For Windows operating systems, the software can be found at http://www.apple.com/support/bonjour/

The control protocol is announced via bonjour as the service "slactrl".

Pressing the "INFO" button on the remote and toggling through the "Info" of the unit will also display the current IP address of the unit.

The TDAI-3400 can also be controlled via the network by accessing http://tdai-3400.local in your browser.

Control Via Serial Port

The serial port on the TDAI-3400 is wired as a DCE, so for communication with a PC or similar use a standard straight through cable

The port settings should always be 8 data bits, no parity, one stop bit and no hardware handshake. The baud rate is 115200 bits per second. All commands and responses are in ASCII form.

When controlling the TDAI-3400 via the serial port, it can wake up even when the standby mode has been set to "deep sleep." However, the TDAI-3400 will miss the first characters transmitted when in deep sleep, because it needs to wake up first. To make sure the TDAI-3400 is ready for the command, send the ON-command a couple of times in succession to guarantee that the command is always received, even if the unit is in deep sleep

Control Protocol

Commands

Every command starts with '!' character and ends with carriage return (ascii 0x0D, referred to in this document as <CR>). There are two types of commands: commands and status requests. Commands are used to emulate remote key presses or to set a certain volume etc. Status requests are used to query the current state of the controller (volume, current source etc.). Commands with invalid formats are simply ignored. For example, sending a command !VOL(100)garbage!MUTEON<CR> will only result in volume being muted, because volume command is not terminated properly.

Responses and Feedback Level

There are three levels of responsiveness, called feedback levels. Each level adds something new to the previous level. Feedback levels can be set from the control interface with command "!VERB(X)<CR>" (X can be 0, 1 or 2). All responses start either with '!' (status messages) or '#' (echo messages) and end with <CR>.

Feedback level 0: Data is sent only when data is requested by a status request command. For example, command "!VOL?<CR>" would return "!VOL(XXX)<CR>", where "XXX" would be current volume.

Feedback level 1: Feedback level 1: Data is sent whenever any status changes. The data format is the same as for responses to status request commands.

Feedback level 2: Each command is also echoed back with the '#' in front of the command instead of '!' character. For example, command "!VOL?<CR>" would return "#VOL?<CR>!VOL(XXX)<CR>".

The following commands and requests are available on the TDAI-3400:

Commands & Requests	Return format	Values	Description
!AUDIOSTATUS?	!AUDIOSTATUS ("Audiostring")	Audiostring is a string describing the current audio input.	Requests format information for the current audio input.
!BAL?	!BAL(balance)	Balance describes the balance setting in this range: L1 to L10: Balance is to the left. 0: Balance is centered R1 - R10: Balance is to the right	Requests the current balance trim setting
!BAL(balance)	-	Balance describes the balance setting in this range: L1 to L10: Balance is to the left. 0: Balance is centered R1 - R10: Balance is to the right	Sets the balance trim setting
!BASS?	!BASS(n)	n = -12 to 12 (dB)	Requests the current bass gain trim setting
!BASS(n)	-	n = -12 to 12 (dB)	Sets the bass gain trim setting
!BASSFREQ?	!BASSFREQ(n)	n = 20 to 800 (Hz)	Requests the current bass frequency trim setting
!BASSFREQ(n)	-	n = 20 to 800 (Hz)	Sets the bass frequency trim setting
!DEVICE?	!DEVICE(TDAI-3400)	-	Requests identifying information.
!HP?	!HP(x)	x is 1 if headphones are connected, otherwise 0	Requests the connection status of headphones.
!HPMUTE?	!HPMUTE(ON) or !HPMUTE(OFF)	-	Requests the current headphone mute state.
!HPMUTE	-	-	Toggles the current headphone mute state.
!HPMUTEON	-	-	Mutes the headphones.
!HPMUTEOFF	-	-	Demutes the headphones.
!HPVOL?	!HPVOL(n)	-999 to 120 (steps of 0.1dB)	Requests the current headphone volume.
!HPVOL(n)	-	-999 to 120 (steps of 0.1dB)	Sets the current headphone volume to a new value.
!HPVOLCH(n)	-	-999 to 999 (steps of 0.1dB)	Changes the headphone volume by the requested amount.
!HPVOLDN	-	-	Headphone volume down (by 0.5dB).
!HPVOLUP	-	-	Headphone volume up (by 0.5dB).
!IPWIFI?	!IPWIFI(xxx.xxx.xxx.xxx)	IP for the Wi-Fi interface. If not connected, the return value will be an empty string.	Requests the IP of the Wi-Fi interface
!IPWIRED?	!IPWIRED(xxx.xxx.xxx.xxx)	IP for the Ethernet interface. If not connected, the return value will be an empty string.	Requests the IP of the Ethernet interface

!MACWIFI?	!MACWIFI(xx:xx:xx:xx:xx:xx)	MAC address for the Wi-Fi interface.	Requests the IP of the Wi-Fi interface
!MACWIRED?	!MACWIRED(xx:xx:xx:xx:xx:xx)	MAC address for the Wired interface.	Requests the IP of the Ethernet interface
!MUTE?	!MUTE(ON) or !MUTE(OFF)	-	Requests the current mute state.
!MUTE	-	-	Toggles the current mute state. Same function as the mute button on the remote.
!MUTEON	-	-	Mutes the amplifier.
!MUTEOFF	-	-	Demutes the amplifier.
!OFF	-	-	Turns the amplifier off.
!ON	-	NOTE: When TDAI-3400 is set for Deep Sleep Stand-by, you should send the command twice.	Turns the amplifier on.
!PWR?	!PWR(ON) or !PWR(OFF)	-	Requests the current power state of the amplifier.
!PWR	-	-	Toggles power state of the amplifier. Same function as pressing the power button on the remote.
!RP?	!RP(n)	0: Bypass 1-8: Focus positions 1 to 8 9: Global	Requests the currently selected RoomPerfect position.
!RP(n)	-	0: Bypass 1-8: Focus positions 1 to 8 9: Global	Selects a new RoomPerfect position (if available)
!RPDN	-	-	Selects previous RoomPerfect position. Same as pressing down-arrow on the remote.
!RPUP	-	-	Selects next RoomPerfect position. Same as pressing up-arrow on the remote.
!RPLIST?	!RPCOUNT(N) !RPNAME(a,"Name") !RPNAME(b,"Name")	N is the total number of positions in the list. a, b etc are the numbers of the RoomPerfect Positions and Name is the corresponding name. One line will be send for each available position.	Requests the index and name for each available RoomPerfect Position.
!RPNAME?	!RPNAME(n,"Name")	n is the current RoomPerfect position Name: A string with the name of the position.	Requests the name of the currently selected RoomPerfect position.
!RPNAME(n)?	!RPNAME(n,"Name")	n is the number of the RoomPerfect position. Name: A string with the name of the position. If the requested position does not exist, Name will be an empty string.	Requests the name of RoomPerfect position n.

!SPEAKER?	!SPEAKER(n)	0: There is only one speaker setup. 1: Speaker setup 1 selected. 2: Speaker setup 2 selected.	Requests the currently selected speaker setup.
!SPEAKER(n)	-	1 or 2	Selects speaker setup n (if speaker setup 2 is activated).
!SRC?	!SRC(n)	n is the index of the currently selected source.	Requests the currently selected source.
!SRCLIST?	!SRCCOUNT(N) !SRCNAME(a,"Name") !SRCNAME(b,"Name") …	N is the total number of positions in the list. A, b etc. are the numbers of the sources and Name is the name of the source. One line will be send for each enabled source.	Requests a list of all available and enabled sources.
!SRC(n)	-	n can be any index from the list returned by !SRCLIST?	Selects the source n.
!SRCDN	-	-	Selects the previous source. Same function as pressing "SRC -" on the remote.
!SRCUP	-	-	Selects the next source. Same function as pressing "SRC +" on the remote.
!SRCNAME?	!SRCNAME(n,"Name")	n is the currently selected source. Name is the name of the currently selected source.	Requests the name of the currently selected source.
!SRCNAME(n)?	!SRCNAME(n,"Name")	Name is the name of source n If the requested source does not exist or is disabled, Name will be an empty string.	Requests the name of source n.
!STREAMTYPE?	!STREAMTYPE(n)	n is the current stream type playing. 0 = none 1 = vTuner 2 = Spotify 3 = Airplay 4 = uPnP 5 = USB File 6 = Roon Ready 7 = Unknown stream	Requests the stream type being played.
!SWVER?	!VER (Verstring)	Verstring is a string describing the SW versions.	Requests the current software version information.
!TREBLE?	!TREBLE(n)	n = -12 to 12 (dB)	Requests the current treble gain trim setting
!TREBLE(n)	-	n = -12 to 12 (dB)	Sets the treble gain trim setting
!TREBLEFREQ?	!TREBLEFREQ(n)	n = 1500 to 16000 (Hz)	Requests the current treble frequency trim setting
!TREBLEFREQ(n)	-	n = 1500 to 16000 (Hz)	Sets the treble frequency trim setting

!VERB?	!VERB(n)	n is the current VERBOSITY setting. See table for values.	Requests the current verbosity setting.
!VERB(n)	-	n is the new verbosity level. See table.	Sets a new verbosity level for the interface.
!VOI?	!VOI(n)	n is the currently selected voicing.	Requests the currently selected voicing.
!VOI(n)	-	n is the voicing to select. Can be any value from the list returned by !VOILIST?	Selects a new voicing.
!VOIDN	-	-	Selects the previous voicing. Same function as pressing the left arrow on the remote.
!VOIUP	-	-	Selects the next voicing. Same function as pressing the right arrow on the remote.
!VOILIST?	!VOICOUNT(N) !VOINAME(a,"Name") !VOINAME(b,"Name") …	N is the total number of positions in the list. A, b etc. are the numbers of the voicings and Name is the name of the voicing One line will be send for each voicing.	Requests a list of available voicings.
!VOINAME?	!VOINAME(n,"Name")	n is the currently selected voicing. Name is the name of the currently selected voicing. If the requested voicing does not exist, Name will be an empty string.	Requests the name of the currently selected voicing.
!VOINAME(n)?	!VOINAME(n,"Name")	Name is the name of voicing n.	Requests the name of voicing n.
!VOL?	!VOL(n)	-999 to 120 (steps of 0.1dB)	Requests the current volume.
!VOL(n)	-	-999 to 120 (steps of 0.1dB)	Sets the current volume to a new value.
!VOLCH(n)	-	-999 to 999 (steps of 0.1dB)	Changes the volume by the requested amount.
!VOLDN	-	-	Volume down (by 0.5dB).
!VOLUP	-	-	Volume up (by 0.5dB).

IR Codes / TDAI-3400

Commands	NEC1 Code
Digit 1	0xE310, 0x00FF
Digit 2	0xE310, 0x01FE
Digit 3	0xE310, 0x02FD
Digit 4	0xE310, 0x03FC
Digit 5	0xE310, 0x04FB
Digit 6	0xE310, 0x05FA
Digit 7	0xE310, 0x06F9
Digit 8	0xE310, 0x07F8
Digit 9	0xE310, 0x08F7
Up	0xE310, 0x0AF5
Down	0xE310, 0x0BF4
Right	0xE310, 0x0CF3
Left	0xE310, 0x0DF2
Standby	0xE310, 0x0FF0
Volume Down	0xE310, 0x10EF
Mute	0xE310, 0x13EC
Menu	0xE310, 0x16E9
Select	0xE310, 0x19E6
Volume Up	0xE310, 0x1AE5
Digit 0	0xE310, 0x30CF
SRC Down	0xE310, 0x31CE
SRC Up	0xE310, 0x32CD
Info	0xE310, 0x33CC
Play	0xE310, 0x50AF
Previous	0xE310, 0x57A8
Next	0xE310, 0x58A7
Double Node	0xE310, 0x609F
Crossed Node	0xE310, 0x619E
Single Node	0xE310, 0x629D
Green	0xE310, 0x639C
Yellow	0xE310, 0x649B
Red	0xE310, 0x659A
Display	0xE310, 0x6699
Voice	0xE310, 0x6798
Audio	0xE310, 0x6897
Headphone Mute	0xE310, 0x6996
Back / Exit	0xE310, 0x6A95
Trim	0xE310, 0x6B94
Power On:	0xE310, 0x807F
Power Off:	0xE310, 0x817E
Input Dig 1 Coaxial	0xE310, 0x916E

Input Dig 2 Coaxial	0xE310, 0x926D
Input Dig 3 Optical	0xE310, 0x936C
Input Dig 4 Optical	0xE310, 0x946B
Input Dig 5 Optical	0xE310, 0x956A
Input Dig 6 Optical	0xE310, 0x9669
Input Dig 7 USB	0xE310, 0x9768
Input HDMI 1	0xE310, 0x9966
Input HDMI 2	0xE310, 0x9A65
Input HDMI 3	0xE310, 0x9B64
Input HDMI ARC	0xE310, 0x9C63
Input Analog 1 Unbal	0xE310, 0x9D62
Input Analog 2 Unbal	0xE310, 0x9E61
Input Analog 3 Unbal	0xE310, 0x9F60
Input Analog 4 Unbal	0xE310, 0xA05F
Input Analog 5 Unbal	0xE310, 0xA15E
Input Analog 6 Bal	0xE310, 0xA25D
Input vTuner Preset 0	0xE310, 0xA35C
Input vTuner Preset 1	0xE310, 0xA45B
Input vTuner Preset 2	0xE310, 0xA55A
Input vTuner Preset 3	0xE310, 0xA659
Input vTuner Preset 4	0xE310, 0xA758
Input vTuner Preset 5	0xE310, 0xA857
Input vTuner Preset 6	0xE310, 0xA956
Input vTuner Preset 7	0xE310, 0xAA55
Input vTuner Preset 8	0xE310, 0xAB54
Input vTuner Preset 9	0xE310, 0xAC53
Switch Speaker Setup	0xE310, 0xB04F
Input vTuner	0xE310, 0xB847
Input Spotify Connect	0xE310, 0xB946
Input AirPlay	0xE310, 0xBA45
Input Roon Ready	0xE310, 0xBB44
Input uPnP	0xE310, 0xBC43
Input USB File	0xE310, 0xBD42
Input Bluetooth	0xE310, 0xBE41

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