LYNGDORF MP-50

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 MP-50 is compatible with home automation systems via the RS232 and network connectors on the rear socket panel. The MP-50'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 MP-50 on your local network, the MP-50 supports Apple´s Bonjour Discovery service, which must be on the computer you want to set up the MP-50 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 "OK" button on the remote and toggling through the "Info" of the unit will also display the current IP address of the unit.

The MP-50 can also be controlled via the network by accessing http://mp50.local in your browser.

Control Via Serial Port

The serial port on the MP-50 is wired as a DTE, so for communication with a PC or similar, you will need a null modem adapter and gender changer.

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 MP-50 via the serial port, it is able to wake up even when the standby mode has been set to "deep sleep." However, the MP-50 will miss the first one or two characters transmitted when in deep sleep, because it needs to wake up first. To make sure the MP-50 is ready for the command, send a few extra characters before an ON-command. For instance, sending "!!!POWERONMAIN" to turn on the MP-50 will 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: Data is sent whenever any of the statuses listed below change. 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>".

Commands

This chapter introduces all the different control protocol commands.

Command	Return format	Values	Description
!AUDIN?	!AUDIN(X)	X is the number of the active audio input – see list.	Returns currently selected audio input.
!AUDIO			Audio button
!AUDMODE-			Audio processing mode down button.
!AUDMODE?	!AUDMODE(X)	X is the number of the currently active audio mode	Request audio processing mode.
!AUDMODE(X)		X is any of the numbers returned from !AUDMODEL?	Set audio processing mode
!AUDMODE+			Audio processing mode up button.
!AUDMODEL?	!AUDMODECOUNT(N) !AUDMODE(X)"name" Repeated for each available audio mode	N is the total number of available audio-modes. X is the number of the audio mode Name is a string describing audio mode X	Get list of audio processing modes.
!AUDTYPE?	!AUDTYPE(name)	Name is a string describing the current audio input type	Get input audio type. Returns a string with the type. (Still not final format.)
!DEFVOL?	!DEFVOL(X)	-550 to -200 (= -55.0 to -20.0 dB)	Requests default volume setting
!DEFVOL(OFF)			Turns off default volume (uses last used volume on boot instead)
!DEFVOL(X)		-550 to -200 (= -55.0 to -20.0 dB)	Sets default volume
!DEVICE?	!DEVICE(name)		Returns the name of the device.
!DIRD	vi src/control-c		Direction Down button
!DIRL			Direction Left button
!DIRR			Direction Right button
!DIRU			Direction Up button
!DTSDIALOG?	!DTSDIALOG(X)	X = current setting. Signed value / 10 (eg. -10 = -1.0 dB)	Request the current setting of DTS Dialog Control
!DTSDIALOGAVAILABLE?	!DTSDIALOGAVAILABLE(X)	X = 0: Not available, otherwise X = 1	Request the current availability of DTS Dialog Control
!DTSDIALOGDN			DTS Dialog Control Down
!DTSDIALOGUP			DTS Dialog Control Up
!ENTER			Enter button
!EXIT			Exit button

!HDMIMAINOUT?	!HDMIMAINOUT(X)	X is the number of the HDMI output. (See list)	Requests which HDMI output is used for main out.
!HDMIMAINOUT(X)		X is the number of the HDMI output. (See list)	Selects which HDMI output to use for main out.
!HDMIOUT1(X)		X is the number of the HDMI-input to be used, see list.	Route HDMI input X video to HDMI output 1. If this command is used for the main HDMI output, source select will override this command.
!HDMIOUT2(X)		X is the number of the HDMI-input to be used, see list.	Route HDMI input X video to HDMI output 2. If this command is used for the main HDMI output, source select will override this command.
!HDMIOUT3(X)		X is the number of the HDMI-input to be used, see list.	Route HDMI input X video to HDMI output 3. If this command is used for the main HDMI output, source select will override this command.
!INFO			Info button
!INTERFACE?	!INTERFACE(IP) or !INTERFACE(SERIAL)		Returns the active interface for this section, !INTERFACE(IP) or !INTERFACE(SERIAL)
!LIPSYNC-			Reduces the lipsync value.
!LIPSYNC?			Requests the lipsync value.
!LIPSYNC(X)		X is in the range returned by !LIPSYNCRANGE?	Sets the lipsync value.
!LIPSYNC+			Increases the lipsync value.
!LIPSYNCRANGE?	!LIPSYNCRANGE(min,max)		Returns the valid range for lipsync values.
!LOUDNESS?	!LOUDNESS(X)	0 (off) or 1 (on)	Requests loudness status
!LOUDNESS(X)		0 (off) or 1 (on)	Sets loudness status
!MAXVOL?	!MAXVOL(X)	-550 to -200 (= -55.0 to -20.0 dB)	Requests the maximum volume setting
!MAXVOL(X)		-550 to -200 (= -55.0 to -20.0 dB)	Sets the maximum volume
!MENU			Menu Button
!MULTIVIEW			Multiview button
!MUTE			Mute toggle button
!MUTE?	!MUTEON or !MUTEOFF		Requests mute

!MUTEOFF			Mute off
!MUTEON			Mute on
!NEXT			Next button
!NUM(X)		0 to 9	Numeric buttons
!PING?	!PONG		Ping
!PLAY			Play button
!POWER?	!POWER(X)	0 (standby) or 1 (on)	Requests power status
!POWEROFFMAIN			Power off
!POWEROFFZONE2			Zone B power off
!POWERONMAIN			Power on
!POWERONZONE2			Zone B power on
!POWERZONE2?	!POWERZONE2(X)	0 (off) or 1 (on)	Requests power status for Zone B
!PREV			Previous button
!RPFOC-			Previous RoomPerfect position button
!RPFOC?	!RPFOC(X)	X is current RoomPerfect position (0=bypass, 1-4=focus1 – focus4, 9=global)	Request RoomPerfect position
!RPFOC(X)		X is RoomPerfect position to select (0=bypass, 1-4=focus1 – focus4, 9=global)	Set RoomPerfect position
!RPFOC+			Next Roomperfect position button
!RPFOCS?	!RPFOCCOUNT(N) !RPFOC(X)"name" Repeated for all available RP Positions	N is the total number of available RP Positions. X is the number of the position and "name" is the name of the position as a string. Global and bypass will count as positions in this list.	Get available RoomPerfect positions
!RPVOI-			Previous voicing button
!RPVOI?	!RPVOI(X)	X is the currently selected voicing (taken from the list returned by RPVOIS?	Request active voicing
!RPVOI(X)		X is the voicing to select (taken from the list returned by RPVOIS?	Set voicing
!RPVOI+			Next voicing button
!RPVOIS?	!RPVOICOUNT(N) !RPVOI(X)"name" Repeated for all available Voicings	N is the total number of available voicings. X is the number of the voicing and "name" is the name of the position as a string.	Request list of available voicings
!SETUP			Setup button

!SRC-			Previous source button
!SRC?	!SRC(X)"Name"	X is the number of the currently selected source and "Name" is the name of the source as a string.	Request active source
!SRC(X)		X is the source to select. For a list of sources use SRCS?	Select source
!SRC(X)?	!SRC(X)"Name"	X is the number of the requested source and "Name" is the name of the source as a string.	Get info for source x
!SRC+			Next source button
!SRCBTN			SRC button on the P200 remote
!SRCOFF-			Decrease Source volume offset
!SRCOFF?	!SRCOFF(X)	X is the source volume offset for the currently selected source. Between -100 (=-10dB) and 100 (=+10dB)	Request source volume offset for current source
!SRCOFF(X)	!SRCOFF(X)	X is the new source volume offset for the currently selected source. Between -100 (=-10dB) and 100 (=+10dB)	Set source volume offset for current source
!SRCOFF+			Increase source volume offset
!SRCS?	!SRCCOUNT(N) !SRC(X)"Name" Repeated for all available sources	N is the number of available sources. X is the number of the source and "Name" is the name of the source as a string.	Request list of available sources
!STANDBYLEVEL?	!STANDBYLEVEL(X)	X=0 for Deep sleep, X=1 for network standby	Requests current setting for standby level
!STREAMTYPE?	!STREAMTYPE(X)	X is the current stream type (see list)	Returns the type of the current network player source
!TRIMBASS-			Decreases bas level trim (10 = 1dB)
!TRIMBASS?	!TRIMBASS(X)	X is between -120 (-12dB) and 120 (+12dB)	Return bas level trim (10 = 1dB)
!TRIMBASS(X)		X is between -120 (-12dB) and 120 (+12dB)	Sets bas level trim (10 = 1dB)
!TRIMBASS+			Increases bas level trim (10 = 1dB)
!TRIMCENTER-			Decreases center channel level trim (10 = 1dB)

!TRIMCENTER?	!TRIMCENTER(X)	X is between -100 (-10dB) and 100 (+10dB)	Return center channel level trim (10 = 1dB)
!TRIMCENTER(X)		X is between -100 (-10dB) and 100 (+10dB)	Sets center channel level trim (10 = 1dB)
!TRIMCENTER+			Increases center channel level trim (10 = 1dB)
!TRIMHEIGHT-			Decreases height channels level trim (10 = 1dB)
!TRIMHEIGHT?	!TRIMHEIGHT(X)	X is between -100 (-10dB) and 100 (+10dB)	Return height channels level trim (10 = 1dB)
!TRIMHEIGHT(X)		X is between -100 (-10dB) and 100 (+10dB)	Sets height channels level trim (10 = 1dB)
!TRIMHEIGHT+			Increases height channels level trim (10 = 1dB)
!TRIMLFE-			Decreases LFE channel level trim (10 = 1dB)
!TRIMLFE?	!TRIMLFE(X)	X is between -100 (-10dB) and 100 (+10dB)	Return LFE channel level trim (10 = 1dB)
!TRIMLFE(X)		X is between -100 (-10dB) and 100 (+10dB)	Sets LFE channel level trim (10 = 1dB)
!TRIMLFE+			Increases LFE channel level trim (10 = 1dB)
!TRIMSURRS-			Decreases surround channels level trim (10 = 1dB)
!TRIMSURRS?	!TRIMSURRS(X)	X is between -100 (-10dB) and 100 (+10dB)	Return surround channels level trim (10 = 1dB)
!TRIMSURRS(X)		X is between -100 (-10dB) and 100 (+10dB)	Sets surround channels level trim (10 = 1dB)
!TRIMSURRS+			Increases surround channels level trim (10 = 1dB)
!TRIMTREB-			Decreases treble level trim (10 = 1dB)
!TRIMTREB?	!TRIMTREB(X)	X is between -120 (-12dB) and 120 (+12dB)	Return treble level trim (10 = 1dB)
!TRIMTREB(X)		X is between -120 (-12dB) and 120 (+12dB)	Sets treble level trim (10 = 1dB)
!TRIMTREB+			Increases treble level trim (10 = 1dB)
!VERB?	!VERB(X)	0 to 2	Request verbosity level of active interface.

!VERB(X)		0 to 2	Set verbosity level of active interface.
!VIDIN?	!VIDIN(X)	X is the selected video input (See list)	Returns currently selected videoinput (See list)
!VIDTYPE?	!VIDTYPE(typestring)		Returns a string with the current video input
!VOL-			Decrease volume
!VOL-(X)		-999 to 240 (= -99.9 to +24.0 dB)	Decrease volume by x
!VOL?	!VOL(X)	-999 to 240 (= -99.9 to +24.0 dB)	Request current volume
!VOL(X)		-999 to 240 (= -99.9 to +24.0 dB)	Set volume to x
!VOL+			Increase volume
!VOL+(X)		-999 to 240 (= -99.9 to +24.0 dB)	Increase volume by x
!ZAUDIN?	!ZAUDIN(X)	X is the selected audio input for Zone B (See list)	Returns currently selected zone B audio input. (See list)
!ZMUTE			Toggle Zone B Mute
!ZMUTE?	!ZMUTEON or !ZMUTEOFF		Request Zone B Mute
!ZMUTEOFF			Zone B Mute off
!ZMUTEON			Zone B Mute on
!ZSRC-			Previous zone B source button
!ZSRC?	!ZSRC(X)"Name"	X is the number of the currently selected source and "Name" is the name of the source as a string.	Request current Zone B source
!ZSRC(X)		X is the source to select. For a list of sources use ZSRCS?	Set zone B source
!ZSRC(X)?	!ZSRC(X)"Name"	X is the number of the requested source and "Name" is the name of the source as a string.	Request info about zone B source x
!ZSRC+			Next zone B source button
!ZSRCS?	!ZSRCCOUNT(N) !ZSRC(X)"Name" Repeated for all zone B sources	N is the number of available zone B sources. X is the number of the source and "Name" is the name of the source as a string.	Get list of available Zone B sources
!ZSTREAMTYPE?	!ZSTREAMTYPE(X)	X is the current stream type (see list)	Returns the type of the network player when playing on Zone B
!ZVOL-			Decrease zone B volume
!ZVOL-(X)		-999 to 240 (= -99.9 to +24.0 dB)	decrease zone B volume by X
!ZVOL?	!ZVOL(X)	-999 to 240 (= -99.9 to +24.0 dB)	Request current zone B volume

!ZVOL(X)		-999 to 240 (= -99.9 to +24.0 dB)	Set zone B volume
!ZVOL+			Increase zone B volume
!ZVOL+(X)		-999 to 240 (= -99.9 to +24.0 dB)	Increase zone B volume by x

Control Protocol Usage

Controlling Power

Main zone and zone 2 power can be controlled separately with commands !POWERONMAIN<CR>, !POWEROFFMAIN<CR>, !POWERONZONE2<CR> and !POWEROFFZONE2<CR>.

Command !POWER?<CR> is used to get the current power status of the main zone. The response for this command is !POWER(X)<CR>, where the X is 0 or 1, where 0 means the main zone is off and 1 means it is on.

Command !POWERZONE2?<CR> is used to get the current power status of the main zone. The response for this command is !POWERZONE2(X)<CR>, where the X is 0 or 1, where 0 means zone 2 is off and 1 means it is on.

Controlling Volume

Commands !VOL+<CR> and !VOL-<CR> have the same effect as pressing volume up/down buttons from the IR remote control.

Commands !VOL+(X)<CR> and !VOL-(X)<CR> are used to increase or decrease volume by a certain amount. The X in the commands can be anything between 1 and 999 (0.1dB – 99.9dB).

Command !VOL(X)<CR> is used to set the volume to some specific value. The X in the command can be -999 – 200 (-99.9dB – 20.0dB).

Commands !MUTEON<CR>, !MUTEOFF<CR> and !MUTE<CR> are used to set mute, clear mute, and toggle mute, respectively.

Command !VOL?<CR> is used to get the current value of the main zone volume. The response for this command is !VOL(X)<CR>, where X can be -999 – 200 (-99.9dB – 20.0dB). Please note that if verbosity level 1 or higher is used, volume information will be updated to the control interface automatically. There is always at least a 100ms time period between the volume status messages. This period is used to prevent flooding the control interface with too frequent volume updates every time the volume is being adjusted.

Commands !ZVOL+<CR>, !ZVOL-<CR>, !ZVOL+(X)<CR>, !ZVOL-(X)<CR>, !ZVOL(X)<CR>, !ZVOL?<CR>, !ZMUTEON<CR>, !ZMUTEOFF<CR> and !ZMUTE<CR> are used to control zone 2 volume the same way as the main zone volume.

Please note that the volume value in control protocol commands is always in 0.1dB accuracy, meaning that 1.0dB is a value of 10 in the control protocol. This is true for volume status messages and volume control commands.

Warning: Usage of a maximum volume setting is highly recommended to prevent damage to equipment because of an excessive volume setting! It is never possible to set the volume above the maximum volume level setting with control interface commands, but it is very easy to accidentally reach the maximum volume level.

Controlling Sources

Main zone:
A source is a combination of video inputs and audio inputs that can be selected freely from the user interface. The number and names of sources can vary depending on how many sources have been created when setting up the system. The installer can add, delete, edit, and re-order the sources at any time.

Command !SRCS?<CR> is used to find out how many sources there are and what they are named. For example, a response for !SRCS<CR> could be:
!SRCCOUNT(4)<CR>
!SRC(0)"DVD player"<CR>
!SRC(1)"Blu-ray player"<CR>
!SRC(2)"Game console"<CR>
!SRC(3)"PVR"<CR>

It can be seen from the response that there are 4 sources, named "DVD player," "Blu-ray player," "Game console," and "PVR."

Command !SRC?<CR> is used to find out which source is currently selected. The response for this command is !SRC(X)"NAME"<CR> where X is the index of the currently selected source (0 is the first index) and NAME is the name of the currently selected source.

Commands !SRC+<CR> and !SRC-<CR> are used to select next or previous source. Command !SRC(X)<CR> is used to select a specific source. The X in the command can be anything between 0 and the index of the last source. This response is also sent automatically, when the source changes, if feedback level is 1 or higher. If main zone is off, the MP-50 will reply with the previous selected source.

Zone 2:
Sources on zone 2 are a subset of the sources set up for main zone. Command !ZSRCS?<CR> is used to find out the indexes and names of the zone sources. For example, a response for !ZSRCS?<CR> could be:
!ZSRCCOUNT(5)
!ZSRC(0)"Follow Main"<CR>
!ZSRC(1)"CD player"<CR>
!ZSRC(2)"SACD player"<CR>
!ZSRC(3)"MP3 player"<CR>
!ZSRC(4)"TV Sound"<CR>

It can be seen from the response that there are 5 zone 2 sources named "Follow Main," "CD player." "SACD player," "MP3 player," and "TV Sound." "Follow Main" is a special source,

which is always present. It will send the sound from whichever source is selected in the main zone to zone 2.

Command !ZSRC?<CR> is used to find out which zone 2 source is currently selected. The response for this command is !ZSRC(X)"NAME"<CR> where X is the index of the currently selected source (0 is the first index) and NAME is the name of the currently selected source. This response is also sent automatically, when the zone 2 source changes, if feedback level is 1 or higher. If zone 2 is turned off, the MP-50 will reply with the previous selected source.

Commands !ZSRC+<CR> and !ZSRC-<CR> are used to select next or previous source. Command !ZSRC(X)<CR> is used to select a specific source. The X in the command can be anything between 0 and the index of the last source.

Controlling Processing Modes

The MP-50 processor has controls for selecting processing modes, also called audio modes.

Command !AUDMODEL?<CR> can be used to get a list of processing modes; how many are there and what they are named. For example, a response for command !AUDMODEL?<CR> could be:
!AUDMODECOUNT(8)
!AUDMODE(0)"None"<CR>
!AUDMODE(1)"dts Neo:X Cinema"<CR>
!AUDMODE(2)"dts Neo:X Music"<CR>
!AUDMODE(3)"dts Neo:X Game"<CR>
!AUDMODE(4)"Auro-3D/Auromatic"<CR>
!AUDMODE(5)"Dolby Upmixer"<CR>
!AUDMODE(6)"Stereo"<CR>
!AUDMODE(7)"Party"<CR>

Commands !AUDMODE+<CR> and !AUDMODE-<CR> are used to select next and previous audio mode from the list of available audio modes.

Command !AUDMODE(X)<CR> is used to select a specific processing mode, where X is an audio mode index as seen in the reply above.

Command !AUDMODE?<CR> is used to find out which processing mode is currently selected. The response for this command is !AUDMODE(X)"Name"<CR>, where X is the index of the audio mode and Name is the name of the audio mode. This response is sent automatically, when the audio mode changes, if feedback level is 1 or higher.

Controlling Focus Positions

Command !RPFOCS?<CR> is used to get the list of selectable focus positions along with their names. For example, a response for !RPFOCS<CR> could be:
!RPFOCCOUNT(4) <CR>
!RPFOC(1)"Focus 1"<CR>
!RPFOC(2)"Focus 2"<CR>
!RPFOC(4)"Focus 4"<CR>
!RPFOC(9)"Global"<CR>

It can be seen from the response that there are 4 RoomPerfect positions, named "Focus 1," "Focus 2," "Focus 4," and "Global." Note that the numbering of the positions is not consecutive.

Command !RPFOC?<CR> is used to find out which position is currently selected. The response for this command is !RPFOC(X)"NAME"<CR> where X is the index of the currently selected position (a value between 0 and 9) and NAME is the name of the currently selected position. This response is sent automatically whenever the position is changed if feedback level is 1 or higher.

Commands !RPFOC+<CR> and !RPFOC-<CR> are used to select next or previous position. Command !RPFOC(X)<CR> is used to select a specific position. The X in the command can be any index from the list of measured focus positions retrieved by using command !RPFOCS?<CR>.
The installer might add or remove focus positions at any time, so it is recommended to update the list of selectable focus positions at least in every boot-up.

Controlling Voicings

Command !RPVOIS?<CR> is used to find out the list of selectable voicings along with their names. For example, a response for !RPVOIS<CR> is:
!RPVOICOUNT(7)<CR>
!RPVOI(0)"Neutral"<CR>
!RPVOI(1)"Music"<CR>
!RPVOI(2)"Music II"<CR>
!RPVOI(3)"Relaxed"<CR>
!RPVOI(4)"Tilt"<CR>
!RPVOI(5)"Action"<CR>
!RPVOI(6)"Action+Movie"<CR>

It can be seen from the response that there are 7 voicings, named "Neutral," "Music," "Music II," "Relaxed," "Tilt," "Action," and "Action+Movie."

Command !RPVOI?<CR> is used to find out which voicing is currently selected. The response for this command is !RPVOI(X)"NAME"<CR> where X is the index of the currently selected voicing (0 is the first index) and NAME is the name of the currently selected voicing. This response is sent automatically whenever the current voicing is changed if feedback level is 1 or higher.

Commands !RPVOI+<CR> and !RPVOI-<CR> are used to select next or previous voicing. Command !RPVOI(X)<CR> is used to select a specific source. The X in the command can be any index from the list of voicings.

Controlling Lipsync

Command !LIPSYNC?<CR> is used to find out the current value of the lipsync trim. The response for this command is !LIPSYNC(X)<CR> where X is the current lipsync trim in milliseconds.

Commands !LIPSYNC+<CR> and !LIPSYNC-<CR> are used to adjust the lipsync trim value by 5ms or -5ms, respectively. Command !LIPSYNC(X)<CR> is used to set the lipsync trim directly. The valid value range for this command needs to be fetched from the MP-50 (see below).

Please note that the valid range to adjust the lipsync delay is retrieved with the!LIPSYNCRANGE? command, returning minimum and maximum value in ms.

Getting main zone video and audio status

It is possible to find out the currently selected source's video and audio input and current video and audio format in main zone.

Command !VIDIN?<CR> is used to find out the used video input of the currently selected source. The response for this command is !VIDIN(X)<CR>, where X is the current video. See table of video inputs for the translation of the number to actual video input. This response is sent automatically whenever input selection changes if feedback level is 1 or higher.

Command !AUDIN?<CR> is used to find out the used audio input of the currently selected source. The response for this command is !AUDIN(X)<CR>, where X is the current audio input. See table of audio inputs for the translation of the number to actual audio input. This response is sent automatically whenever input selection changes if feedback level is 1 or higher.

Command !VIDTYPE?<CR> is used to find out the current video input format. The response for this command is !VIDTYPE(Typestring)<CR>, where Typestring is a string describing the current video format. This response is sent automatically whenever input signal changes if feedback level is 1 or higher.

Command !AUDTYPE?<CR> is used to get information about the current audio signal type. The response for that command is !AUDTYPE(Typestring)<CR>, where Typestring is a string describing the current input audio type. This response is sent automatically whenever input signal changes if feedback level is 1 or higher.

Getting Zone 2 Audio Status

It is possible to request the currently selected zone source's audio input in zone 2.

Command !ZAUDIN?<CR> is used to find out the used audio input of the currently selected zone source. The response for this command is !ZAUDIN(X)<CR>, where X is the current zone 2 audio input. See table of audio inputs for the translation of the number to actual audio input. This response is sent automatically whenever input selection changes if feedback level is 1 or higher.

Controlling Feedback Level

It is possible to set the feedback level from the external control interface with command !VERB(X)<CR>, where X is the wanted feedback level 0, 1 or 2.

Controlling OSD and OSD Menu

There are two On Screen Display menus in the MP-50 controller:
- The installer menu, which is intended for the setup of the processor
- The user menu (titled "Menu"), which is intended for daily use

It is possible to access and use both of these menus by using the control interface.

Command !MENU<CR> is used to enter the user menu.

Command !ENTER<CR> does the same as the "Ok" button in the installer IR remote.

Commands !DIRU<CR>, !DIRD<CR>, !DIRL<CR>, !DIRR<CR> and !BACK<CR> have the same effect as the similar buttons in the installer IR remote.

Please note that there is no way for the control interface to know whether the system is in OSD menu or not. In normal operation, there should be no need for the user to access the On Screen Menu when using a dedicated control interface.

Direct controlling of HDMI outputs
It is possible to control the HDMI outputs of the MP-50 controller directly using special control interface commands. The controlling allows routing of any HDMI input directly to either one of the HDMI outputs in bypass mode. Bypass mode means that there is no On Screen Display possibility. These commands are not available for the HDMI output currently used as the main output. For selecting what is shown on the main output, please use the source-commands.

The commands !HDMIOUT1(X), !HDMIOUT2(X), !HDMIOUT3(X), are used for selecting which input is shown on each output, where X is the number of the input. See the list of video inputs for the values.

Control of main HDMI output
The main HDMI output is controlled by using the source-commands, but there are two additional functions to use for the main output.

The command !HDMIMAINOUT(X) can be used to select which HDMI output is used for the main output. For possible values, see the table of video outputs. Note that one of the available outputs is the "Video Wall" option, so this command can be used to enable or disable the video wall. To request the current value, use the command !HDMIMAINOUT(X).

This can be used to fetch the old value before switching to video wall mode, so it can be stored for restoring the old setting.

VIDEO INPUTS

No.	Video Input
0	None
1	HDMI 1
2	HDMI 2
3	HDMI 3
4	HDMI 4
5	HDMI 5
6	HDMI 6
7	HDMI 7
8	HDMI 8
9	Internal

VIDEO OUTPUTS

No.	Video Output
0	None
1	HDMI Out 1
2	HDMI Out 2
3	HDBT Out

AUDIO INPUTS

No.	Audio input
0	None
1	HDMI
3	Spdif 1 (Opt.)
4	Spdif 2 (Opt.)
5	Spdif 3 (Opt.)
6	Spdif 4 (Opt.)
7	Spdif 5 (AES)
8	Spdif 6 (Coax)
9	Spdif 7 (Coax)
10	Spdif 8 (Coax)
11	Internal Player
12	USB
20	16-Channel
21	16-Channel 2.0
22	16-Channel 5.1
23	16-Channel 7.1
24	Audio Return Channel

STREAM TYPES

No.	Stream type
0	None
1	vTuner
2	Spotify
3	AirPlay

4	UPnP
5	Storage
6	Roon ready
7	Unknown

IR CODES

NEC1 Protocol

Description	Value
0	0x37CA, 0x00FF
1	0x37CA, 0x01FE
2	0x37CA, 0x02FD
3	0x37CA, 0x03FC
4	0x37CA, 0x04FB
5	0x37CA, 0x05FA
6	0x37CA, 0x06F9
7	0x37CA, 0x07F8
8	0x37CA, 0x08F7
9	0x37CA, 0x09F6
Audio	0x37CA, 0x0AF5
Setup	0x37CA, 0x0BF4
Power Togle	0x37CA, 0x0CF3
Power On	0x37CA 0x807F
Power Off	0x37CA 0x817E
Info	0x37CA, 0x0DF2
Previous	0x37CA, 0x0EF1
Play_Pause	0x37CA, 0x0FF0
Next	0x37CA, 0x10EF
Up	0x37CA, 0x11EE
Left	0x37CA, 0x12ED
OK	0x37CA, 0x13EC
Right	0x37CA, 0x14EB
Down	0x37CA, 0x15EA
Back	0x37CA, 0x16E9
Menu	0x37CA, 0x17E8
SRC	0x37CA, 0x18E7
Vol+	0x37CA, 0x19E6
SRC+	0x37CA, 0x1AE5
Vol-	0x37CA, 0x1BE4
Mute	0x37CA, 0x1CE3
SRC-	0x37CA, 0x1DE2
Input 1	0x37CA, 0x718E
Input 2	0x37CA, 0x728D
Input 3	0x37CA, 0x738C
Input 4	0x37CA, 0x748B
Input 5	0x37CA, 0x758A
Input 6	0x37CA, 0x7689
Input 7	0x37CA, 0x7788
Input 8	0x37CA, 0x7887
Input 9	0x37CA, 0x7986

RS232 pinout diagram

Pin 1: Not connected
Pin 2: Received Data (RXD)
Pin 3: Transmit Data (TXD)
Pin 4: Not connected
Pin 5: Ground (GND)

Pin 6: Not connected
Pin 7: Not connected
Pin 8: Not connected
Pin 9: Not connected