Matrix Audio™

Simple, Reliable Multi-Room Systems

Series RS-232 Guide

S::4 SERIES FOUR

S::6 SERIES SIX

S::8 SERIES EIGHT

Series 4, Series 6, Series 8

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Matrix MRC RS232 Command Definition

Connector: DB9 Male

Communications: 4800 Baud, 8 data bits, 1 stop bit, no parity

General:

All messages are sent using ASCII text strings. Every command and status message is terminated with a line feed (0x0A or 10). All messages are case-sensitive. The MRC will respond to the command messages sent by the Host and will not send any messages except in this case. If the Host sends a new message before the MRC has responded to the previous message, the MRC will ignore the new message.

The Host should always start it's communication with the MRC by sending a "Get Configuration" command to determine the capabilities of the unit it is controlling. Not all MRC products support all of the functionality which is specified in the Command Definition.

MRC Command Messages:

Command	*Command Description*	*Response*
MPON	Power On	Power On Status, Error
MPOFF	Power Off	Power Off Status, Error
MVER	Get Firmware Version	Firmware Version Status, Error
FPID	Get Product ID	Product ID Status, Error
MGCF	Get Configuration	Configuration Status, Error
FNIC	Get Number of IIC devices	Num IIC Devices Status, Error
FGICxx	Get IIC Device Status, where: 'xx' is the IIC device index, valid values range from 1 to the number of available IIC devices as reported in the 'Num IIC Devices Status'	IIC Device Status, Error

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Command	*Command Description*	*Response*
FPRQxx	Request Pass Through Programming, where: 'xx' is the IIC address of the device to program	Pass Through Programming Response, Error
MSVLrr,vv	Set Volume, where: 1) 'rr' is the desired room, valid values are 1-64 2) 'vv' is the desired volume level, valid values are: • 101 : Mute • 0..55 : 0..-55 dB	Volume Status, Error
MGVLrr	Get Volume, where: 'rr' is the desired room, valid values are 1-64	Volume Status, Error
MSBSrr,bb	Set Bass, where: 1) 'rr' is the desired room, valid values are 1-64 2) 'bb' is the desired bass level, valid values are: • 0 : level • 1..10 : -10..-1 dB • 11..20 : 1..10 dB	Bass Status, Error
MGBSrr	Get Bass, where: 'rr' is the desired room, valid values are 1-64	Bass Status, Error
MSTRrr,tt	Set Treble, where: 1) 'rr' is the desired room, valid values are 1-64 2) 'tt' is the desired treble level, valid values are: • 0 : level • 1..10 : -10..-1 dB • 11..20 : 1..10 dB	Treble Status, Error
MGTRrr	Get Treble, where: 'rr' is the desired room, valid values are 1-64	Treble Status, Error

Command	Command Description	Response
MSSCrr,s	Select Source, where: 1) 'rr is the desired room, valid values are 1-64 2) 's' is the desired source, valid values are: • 0 : no source selected • 1-8 : for sources 1 to 8 Note: If the number of available zones is 1, the room selection will be ignored and the source selection will be applied to all of the available rooms.	Source Status, Room Grouping Status, Error
MGSCrr	Get Source, where: 'rr' is the desired room, valid values are 1-64	Source Status, Error
MSSRrr,s	Select SRS, where: 1) 'rr' is the desired room, valid values are 1-64 2) 's' is the SRS state, valid values are: • 0 : Off • 1 : Bass Boost • 2 : SRS 3D • 3 : Focus • 4 : WOW	SRS Status, Error
MGSRrr	Get SRS, where: 'rr' is the desired room, valid values are 1-64	SRS Status, Error
MGGLs	Get Gain Level, where: 's' is the desired source	Gain Status, Error
MSPGrr,s	Select Paging, where: 1) 'rr' is the desired room, valid values are 1-64 2) 's' is the Paging state, valid values are: • 0 : Off • 1 : On	Paging Status, Error
MGPGrr	Get Paging, where: 'rr' is the desired room, valid values are 1-64	Paging Status, Error

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Command	Command Description	Response
MSGLs,i,o	Set Gain Level, where: 1) 's' is the desired source 2) 'i' is the desired input gain, valid values are: • 0 : 0 dB • 1 : -3 dB • 2 : -6 dB • 3 : -9 dB • 4 : -12 dB 3) 'o' is the desired output gain, valid values are: • 0 : 0 dB • 1 : +3 dB • 2 : +6 dB • 3 : +9 dB • 4 : + 12 dB • 5 : + 15 dB • 6 : + 18 dB	Gain Status, Error
MSPVrr,vv	Set Paging Volume, where: 1) 'rr' is the desired room, valid values are 1-64 2) 'vv' is the desired volume level, valid values are: • 101 : Mute • 0..55 : 0..-55 dB	Paging Volume Status, Error
MGPVrr	Get Paging Volume, where: 'rr' is the desired room, valid values are 1-64	Paging Volume Status, Error
MGSTrr	Get General Status, where: 'rr' is the desired room, valid values are 1-64	General Status, Error
MSSTs,x	Set Source State, where: 1)'s' is the desired source, valid values are 1-8 2) 'x' is the desired state, valid values are: • 2 : Pause • 1 : On • 0 : Off	Source Status, Error

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Command	Command Description	Response
MCMDs,x	Send Source Command, where: 1) 's' is the desired source, valid values are 1-8 2) 'x' is the desired command index, valid values depend on the source type. Refer to Appendix 1. Note: If a requested command is not supported for the specified source, an Error is returned.	Acknowledge Status , Error
MSBLrr,x	Set Room Balance, where: 1) 'rr' is the desired room, valid values are 1-64 2) 'x' is the balance value, valid values are: 0 : balanced evenly 1..10 : Full Left..10% Left 11..20 : 10% Right .. Full Right	Balance Status, Error
MGBLrr	Get Room Balance, where: 'rr' is the desired room, valid values are 1-64	Balance Status, Error
MSPRrr,x	Set Room Privacy, where: 1) 'rr' is the desired room, valid values are 1-64 2) 'x' is the desired privacy state, valid values are: 0 : Off 1 : On	Privacy Status, Error
MGPRrr	Get Room Privacy, where: 'rr' is the desired room, valid values are 1-64	Privacy Status, Error
MARGgg,rr	Add Room to Group, where: 1) 'gg' is any room already in the group 2) 'rr' is the room, valid values range from (1..64)	Room Grouping Status, Error
MRRGrr	Remove Room from Group, where: 'rr' is the room to remove, valid values range from (1..64) Note: The Room Grouping will be removed if less than 2 rooms are associated with the given source.	Room Grouping Status, Error

Command	Command Description	Response
MSRGs,b8,b7,b6,b5,b4,b3,b2,b1	Create Room Grouping, where: 1) 's' is the source to associate the rooms with 2) 'b8'... 'b1' is a binary room selection bitmap where all rooms to be grouped have a binary 1 in the room position. The most significant bit in 'b8' is for room 64 and the least significant bit in 'b1' is for room 1. Notes: 1) A room grouping will be considered invalid if there are not at least two rooms selected for the group. 2) Only one room group can be associated with any given source.	Room Grouping Status, Error
MDRG	Dissolve all Room Groupings	Acknowledge Status, Error
MGRGrr	Get Room Grouping, where: 'rr' is any room in the grouping.	Room Grouping Status, Error
MIGVrr,i	Increment the Volume for a Room Grouping, where: 1) 'rr' is any room in the grouping 2) 'i' is the increment value or 0 for system default	Acknowledge Status, Error
MDGVrr,i	Decrement the Volume for a Room Grouping, where: 1) 'rr' is any room in the grouping 2) 'i' is the decrement value or 0 for system default	Acknowledge Status, Error
MSGVrr,vv	Set the Volume for a Room Grouping, where: 1)'rr' is any room in the grouping 2) 'vv' is the desired volume level, valid values are: • 101 : Mute • 0..55 : 0..-55 dB	Acknowledge Status, Error
MGRSs	Get the Rooms currently listening to a source, where: 's' is the desired source, valid values are 1-8	Source Grouping Status, Error

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Command	Command Description	Response
MSFVrr,s,fffffff	Set the favourite, where: 1) 'rr' is the desired room, valid values range from [1..64] 2) 's' is the desired source, valid values are 1-8 3) 'fffffff' is the direct tuning string; it can be from 0 to 7 characters long and is translated as specified in the 'Send Source Direct Data' command: Zero length data will clear the favourite	Favourite Status, Error
MGFVrr,s	Get the favourite, where: 1) 'rr' is the desired room, valid values range from [1..64] 2) 's' is the desired source, valid values are 1-8	Favourite Status, Error
MSLOrr	Lock out the keypad in a room, where: 'rr' is the room to lock out, valid values range from [1..64]	Lock Out Status, Error
MCLOrr	Clear the keypad lock out in a room, where: 'rr' is the room to clear the lock out in, valid values range from [1..64]	Lock Out Status, Error
MGLO	Get the keypad lock out status for the system	Lock Out Status, Error
MSPSs,nn,ppppppp	Set the preset, where: 1) 's' is the desired source, valid values are 1-8 2) 'nn' is the desired preset, valid values are 1-10 3) 'ppppppp' is the direct tuning string; it can be from 0 to 7 characters long and is translated as specified in the 'Send Source Direct Data' command: Zero length data will clear the preset	Preset Status, Error
MGPSs,nn	Get the preset, where: 1) 's' is the desired source, valid values are 1-8 2) 'nn' is the desired preset, valid values are 1-10	Preset Status, Error
MSTPs	Get the source type, where: 's' is the desired source, valid values are 1-8	Source Type Status, Error

Command	*Command Description*	*Response*
MSSDs,ddd dddd	Send Source Direct Data, where: 1) 's' is the desired source, valid values are 1-8 2) 'dddddd' is the direct tuning string, the meaning of the data depends on the source type: • 0 : **undefined** – direct data is not processed • 1 : **AM/FM Tuner** – station frequency; if FM then there will be a '.' in the frequency string • 2 : **CD Changer** – disk and track, in the format 'ddd.ttt' where 'ddd' is the disk and 'ttt' is the track • 3 : **DVD Player** – direct data not processed • 4 : **Satellite Receiver** – 'ssss' where 'ssss' is the station number • 5 : **Audio Server** - disk and track, in the format 'ddd.ttt' where 'ddd' is the album and 'ttt' is the title • 6 : **Other** – direct data sent as received • 20 : **Internal AM/FM Tuner**– station frequency; if FM then there will be a '.' in the frequency string	Source Status, Error
MGSSs	Get Source Status, where: 's' is the desired source, valid values are 1-8	Source Status, Error

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MRC Status Messages:

Status	*Description*
ERR	Error
ACK	Acknowledge Status
PON	Power On Status
POFF	Power Off Status
MVERxxxx	Firmware Version Status, where 'xxxx' denotes the current firmware version
FPIDxxxx	Product ID Status, where 'xxxx' denotes the firmware product ID
MCFrr,s,zz	Configuration Status, where: 1) 'rr' is the number of rooms connected, valid values are 2-64 2) 's' is the number of sources connected, valid values are 4,6,8 3) 'zz' is the number of zones available, valid values are 1 or 'rr'/2
FNICxx	Num IIC Devices Status, where 'xx' denotes the number of IIC devices available in the MRC
FSICxx,aaa,vvvv,pppp,ddddd	IIC Device Status, where: 1) 'xx' is the IIC device index, valid values range from 1 to the number of IIC devices as denoted in the 'Num IIC Devices Status' 2) 'aaa' is the device ID 3)'vvvv' is the version 4) 'pppp' is the product ID 5) 'ddddd' is a descriptive string for the device, the string is of variable length
FPPOK	Pass Through Programming Status
MVLrr,vv	Volume Status, where: 1) 'rr' denotes the room, valid values are 1-64 2) 'vv' denotes the volume setting, valid values are: • 101 : Mute • 0..100 : 0..-100 dB
MBSrr,bb	Bass Status, where: 1) 'rr' denotes the room, valid values are 1-64 2) 'bb' denotes the bass level, valid values are: • 0 : level • 1..10 : -10..-1 dB • 11..20 : 1..10 dB

Status	Description
MTRrr,tt	Treble Status, where: 1) 'rr' denotes the room, valid values are 1-64 2) 'tt' denotes the bass level, valid values are: • 0 : level • 1..10 : -10..-1 dB • 11..20 : 1..10 dB
MSCrr,s	Source Status, where: 1) 'rr' denotes the room, valid values are 1-64 2) 's' denotes the source, valid values are: • 0 : no source selected • 1-8 : for sources 1 to 8 selected
MSRrr,s	SRS Status, where: 1) 'rr' denotes the room, valid values are 1-64 2) 's' denotes the SRS state, valid values are: • 0 : Off • 1 : Bass Boost • 2 : SRS 3D • 3 : Focus • 4 : WOW • 5 : SRS not Available
MGLs,i,o	Gain Status, where: 1) 's' denotes the source 2) 'i' denotes the input gain, valid values are: • 0 : 0 dB • 1 : -3 dB • 2 : -6 dB • 3 : -9 dB • 4 : -12 dB 3) 'o' denotes the output gain, valid values are: • 0 : 0 dB • 1 : +3 dB • 2 : +6 dB • 3 : +9 dB • 4 : + 12 dB • 5 : + 15 dB • 6 : + 18 dB
MPGrr,s	Paging Status, where: 1) 'rr' denotes the room, valid values are 1-64 2) 's' denotes the Paging state, valid values are: • 0 : Off • 1 : On

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Status	Description

MPVrr,vv	Paging Volume Status, where:
	1) 'rr' denotes the room, valid values are 1-64
	2) 'vv' denotes the volume setting, valid values are:
	  • 101 : Mute
	  • 100..0: -100..0 dB

MBALrr,x	Balance Status, where:
	1) 'rr' denotes the room, valid values are 1-64
	2) 'x' denotes the balance, valid values are:
	  • 0 : balanced evenly
	  • 1..10 : Full Left..10% Left
	  • 11..20 : 10% Right .. Full Right

MPRVrr,x	Privacy Status, where:
	1) 'rr' denotes the room, valid values are 1-64
	2) 'x' denotes the privacy status, valid values are:
	  • 0 : Off
	  • 1 : On

MGSTrr,vv,bb,tt,s,r,z,ll,p	General Status, where:
	1) 'rr' denotes the room, valid values are 1-64
	2) 'vv' denotes the volume setting, valid values are:
	  • 101 : Mute
	  • 100..0 : -100..0 dB
	3) 'bb' denotes the bass level, valid values are:
	  • 0 : level
	  • 1..10 : -10..-1 dB
	  • 11..20 : 1..10 dB
	4) 'tt' denotes the treble level, valid values are:
	  • 0 : level
	  • 1..10 : -10..-1 dB
	  • 11..20 : 1..10 dB
	5) 's' denotes the source, valid values are 1-8
	6) 'r' denotes the SRS state, valid values are:
	  • 0 : Off
	  • 1 : Bass Boost
	  • 2 : SRS 3D
	  • 3 : Focus
	  • 4 : WOW
	  • 5 : SRS not available for this room
	7) 'zz' denotes the zone, valid values are:
	  • 0 : not connected to a zone
	  • 1..32 : zone ID
	8) 'll' denotes the balance, valid values are:
	  • 0 : balanced equally
	9) 'p' denotes the privacy status, valid values are:
	  • 0 : Off
	  • 1 : On

Status	Description

MRGSzz,s,b8,b7,b6,b5,b4,b3,b2,b1	Room Grouping Status, where:
	1) 'zz' is the zone ID, valid values are:
	    • 0 : no zone ID – all rooms in selection are not in a grouping
	    • 1..32 : zone ID
	2) 's' is the source the rooms are currently associated with
	3) 'b8'…'b1' is a binary room selection bitmap where all rooms to be grouped have a binary 1 in the room position. The most significant bit in 'b8' is for room 64 and the least significant bit in 'b1' is for room 1.
	
	Note: If none of the bits are set in the room selection bitmap, then the room grouping has been removed.

MGRSs,b8,b7,b6,b5,b4,b3,b2,b1	Source Grouping Status, where: 1) 's' is the source who the rooms are listening to 2) 'b8'…'b1' is a binary room selection bitmap where all rooms listening to 's' have a binary 1 in the room position. The most significant bit in 'b8' is for room 64 and the least significant bit in 'b1' is for room 1
MFAVrr,s,fffffff	Favourite Status, where: 1) 'rr' is the room, valid values range from [1..64] 2) 's' is the source, valid values are 1-8 3) 'fffffff' is the direct tuning string; it can be from 0 to 7 characters long and is translated as specified in the 'Send Source Direct Data' command: Zero length data is returned if the favourite is not set
MLOTb8,b7,b6,b5,b4,b3,b2,b1	Lock Out Status, where: 'b8'…'b1' is a binary room selection bitmap where all rooms blocked out have a binary 1 in the room position. The most significant bit in 'b8' is for room 64 and the least significant bit in 'b1' is for room 1
MPRSs,nn,ppppppp	Preset Status, where: 1) 's' is the source, valid values are 1-8 2) 'nn' is the preset, valid values are 1-10 3) 'ppppppp' is the direct tuning string; it can be from 0 to 7 characters long and is translated as specified in the 'Send Source Direct Data' command: Zero length data is returned if no preset is set

Status	Description
MSTPs,tt	Source Type Status, where: 1) 's' is the source, valid values are 1-8 2) 'tt' is the source type, valid values are: • 0 : undefined • 1 : AM/FM Tuner • 2 : CD Changer • 3 : DVD Player • 4 : Satellite Receiver • 5 : Audio Server • 6 : Other 1 • 20 : Internal AM/FM Tuner

MSSTs,p [variable]	Source Status, where:
	1) 's' is the source, valid values are 1-8
	2) 'p' is the source state, valid values are:
	• 0 : Off
	• 1 : On
	• 2 : Paused
	3) [variable] is a data string which varies with the type of source:
	• 0 : undefined – p where:
	• 1 : AM/FM Tuner – b,m,fffff where:
	  ▪ ' b' is the band: 1 = AM, 2 = FM
	  ▪ 'm' is the mono/stereo status: 1 = mono, 0 = stereo
	  ▪ 'fffff' is the currently tuned frequency (if it is known)
	• 2 : CD Changer
	• 3 : DVD Player
	• 4 : Satellite Receiver
	• 5 : Audio Server
	• 6 : Other 1
	• 20 : Internal AM/FM Tuner– b,m,s,fffff where:
	  ▪ 'b' is the band: 1 = AM, 2 = FM
	  ▪ 'm' is the mono/stereo status: 1 = mono, 0 = stereo
	  ▪ 's' is the seek/tune status: '1' = seek, '0' = tune
	  ▪ 'fffff' is the currently tuned frequency

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Appendix 1 : Source Command Codes Referenced by Source Type

Command Index	Other 1	AM/FM Tuner	CD Player	DVD Player	Satellite Receiver	Audio Server	Internal Tuner
1		Seek/ Tune Down	Previous	Navigate Down	Previous	Previous	Seek/Tune Down
2		Seek/ Tune Up	Next	Navigate Up	Next	Next	Seek/Tune Up
3			Previous Disc	Navigate Left		Previous List	Stop Seek
4			Next Disc	Navigate Right		Next List	Seek/Tune
5		Band	Play	Select	Select	Play	Next Band
6		Mono/Stereo		Menu	Menu		Mono/Stereo
7	Previous Preset	Previous Preset	Previous Preset		Previous Preset	Previous Preset	Previous Preset
8	Next Preset	Next Preset	Next Preset		Next Preset	Next Preset	Next Preset

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