ONKYO RS232 CONTROL SYSTEM

For TX-DS989

Version 1.02
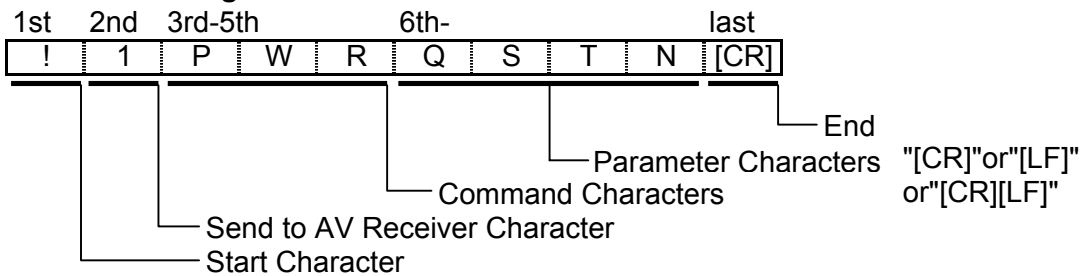Updated July 7, 2000

1.Control Interface Overview

The manual for the TX-DS989/DTR-9.1/RDC-7 should also be used with this document
to understand how this protocol can be used the TX-DS989/DTR-9.1/RDC-7.

ONKYO RS232 Control System

1.1.HARDWARE OVERVIEW

· 3 wire RS-232C protocol
· 9 pin female D type connector
  pin 2 = transmit, pin 3 = receive, pin 5 = signal ground
· Communication Parameters
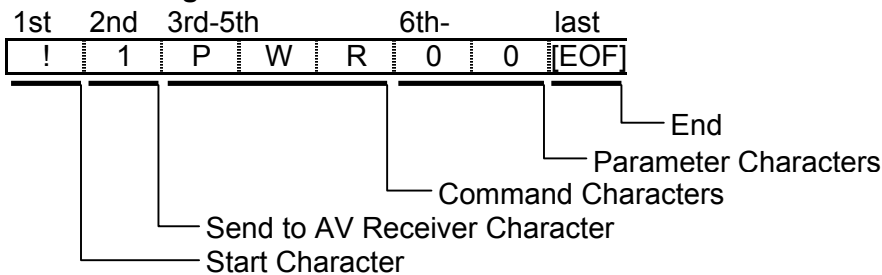 9600 baud   no parity
  8 data bits   no xon/xoff
  1 stop bit

1.2.MESSAGE OVERVIEW

Receive Message Format

1st	2nd	3rd-5th			6th-			last	
!	1	P	W	R	Q	S	T	N	[CR]

End
Parameter Characters   "[CR]"or"[LF]"
                        or"[CR][LF]"
Command Characters
Send to AV Receiver Character
Start Character

Note : The Interval Time Receiving the message need to take more than 50msec.

Send Message Format

1st	2nd	3rd-5th			6th-		last
!	1	P	W	R	0	0	[EOF]

End
Parameter Characters
Command Characters
Send to AV Receiver Character
Start Character

Special Character

[CR]	Carridge Return	Ascii Code 0x0D
[LF]	Line Feed	Ascii Code 0x0A
[EOF]	End Of File	Ascii Code 0x1A

1.3.COMMAND SET SUMMARY

Power Command	"PWR"	··· 5P
Audio Muting Command	"AMT"	··· 5P
Master Volume Command	"MVL"	··· 5P
Input Selector Command	"SLI"	··· 6P
Rec Selector Command	"SLR"	··· 6P
Zone2 Selector Command	"SLZ"	··· 6P

2.Communication Flow Description

The TX–DS989/DTR–9.1/RDC–7 uses Question, Command and Notification messages to have communicate with a given HOST. This protocol is designed for point to point communication between a HOST and the TX–DS989/DTR–9.1/RDC–7.
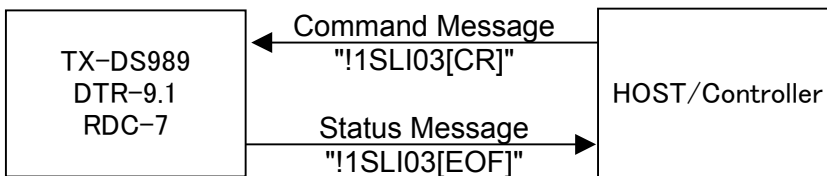
Question Message

Send a "Question Message" to the TX–DS989/DTR–9.1/RDC–7 from the HOST to get the current system status. The TX–DS989/DTR–9.1/RDC–7 will respond with a status message.

```
┌──────────────┐   Question Message   ┌──────────────┐
│  TX-DS989    │◄──"!1SLIQSTN[CR]"────│              │
│  DTR-9.1     │                       │HOST/Controller│
│  RDC-7       │   Status Message      │              │
│              │───"!1SLI03[EOF]"─────►│              │
└──────────────┘                       └──────────────┘
```
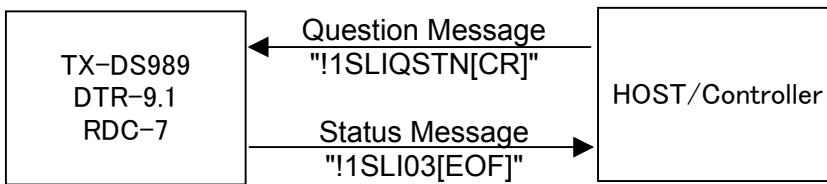
Command Message

Send a "Command Message" to the TX–DS989/DTR–9.1/RDC–7 from the HOST to change the system status. The TX–DS989/DTR–9.1/RDC–7 will respond with a status message within 50msec. If TX–DS989/DTR–9.1/RDC–7 does not respond within 50msec, the communication has failed.

```
┌──────────────┐   Command Message    ┌──────────────┐
│  TX-DS989    │◄──"!1SLI03[CR]"──────│              │
│  DTR-9.1     │                       │HOST/Controller│
│  RDC-7       │   Status Message      │              │
│              │───"!1SLI03[EOF]"─────►│              │
└──────────────┘                       └──────────────┘
```

Notification

If user change the system status, the TX–DS989/DTR–9.1/RDC–7 will notify the HOST by sending the new current status.

```
┌──────────────┐   Status Message     ┌──────────────┐
│  TX-DS989    │                       │              │
│  DTR-9.1     │───"!1SLI03[EOF]"─────►│HOST/Controller│
│  RDC-7       │                       │              │
└──────────────┘                       └──────────────┘
```

3.Command Descriptions

System Power Command "PWR"

Commands to set or get the system-power status

Parameter List (Characters/Means) :
"00"   sets the System Standby
"01"   sets the System On
"QSTN"   gets the System Power Status

Audio Muting Command "AMT"

Commands to set or get the audio-muting status

Parameter List (Characters/Means) :
"00"   sets the Audio Muting Off
"01"   sets the Audio Muting On
"QSTN"   gets the Audio Muting Status

Master Volume Command "MVL"

Commands to set or get the master volume status

Parameter List (Characters/Means) :
"00"-"64"   sets the Volume Level 0 - 100 (In hexadecimal representation)
"UP"   sets the Volume Level Up
"DOWN"   sets the Volume Level Down
"QSTN"   gets the Volume Level

Input Selector Command "SLI"

Commands to set or get the Input selector status

Parameter List (Characters/Means) :
"00"	sets VIDEO1
"01"	sets VIDEO2
"02"	sets VIDEO3
"03"	sets VIDEO4
"04"	sets VIDEO5
"10"	sets DVD
"20"	sets TAPE1
"21"	sets TAPE2
"22"	sets PHONO
"23"	sets CD
"24"	sets FM
"25"	sets AM
"QSTN"	gets the Selector Position

Rec Selector Command "SLR"
Zone2 Selector Command "SLZ"

Commands to set or get the rec/zone2 selector status

Parameter List (Characters/Means) :
"00"	sets VIDEO1
"01"	sets VIDEO2
"02"	sets VIDEO3
"03"	sets VIDEO4
"04"	sets VIDEO5
"10"	sets DVD
"20"	sets TAPE1
"21"	sets TAPE2
"22"	sets PHONO
"23"	sets CD
"24"	sets FM
"25"	sets AM
"7F"	sets REC OFF / ZONE2 OFF
"80"	sets REC SOURCE / ZONE2 SOURCE
"QSTN"	gets the Selector Position

<u>Listening Mode Command "LMD"</u>

Commands to set or get the listening mode status

Parameter List (Characters/Means) :
    "00"   sets STEREO
    "01"   sets DIRECT
    "02"   sets SURROUND
    "03"   sets FILM
    "04"   sets THX
    "05"   sets ACTION
    "06"   sets MUSICAL
    "07"   sets MONO MOVIE
    "08"   sets ORCHESTRA
    "09"   sets UNPLUGGED
    "0A"   sets STUDIO-MIX
    "0B"   sets TV LOGIC
    "0C"   sets ALL CH STEREO
    "0D"   sets THEATER DIMENSIONAL
    "0E"   sets ENHANCED 7
    "0F"   sets MONO
    "UP"   sets Listening Mode Wrap-Around Up
    "DOWN"   sets Listening Mode Wrap-Around Down
    "QSTN"   gets the Listening Mode Status

<u>Late Night Command "LTN"</u>

Commands to set or get the late night with the parameter In this message

Parameter List (Characters/Means) :
    "00"   sets Late Night Off
    "01"   sets Late Night Low
    "02"   sets Late Night High
    "UP"   sets Late Night State Wrap-Around Up
    "QSTN"   gets the Late Night Level

Re-EQ/Academy Command "RAS"

Commands to set or get the Re-EQ/Academy status

Parameter List (Characters/Means) :
"00"   sets Both Off
"01"   sets Re-EQ On
"02"   sets Academy On
"UP"   sets Re-EQ/Academy State Wrap-Around Up
"QSTN"   gets the Re-EQ/Academy Status

Tuning Command "TUN"

Commands to set the tuner frequency status

Parameter List (Characters/Means) :
"nnnnn"   sets Directly Tuning Frequency (FM nnn.nn MHz / AM nnnnn kHz)
"UP"   sets Tuning Frequency Wrap-Around Up
"DOWN"   sets Tuning Frequency Wrap-Around Down

Preset Command "PRS"

Commands to set or get the tuner preset status

Parameter List (Characters/Means) :
"01"-"28"   sets Preset No. 1 - 40 (In hexadecimal representation)
"UP"   sets Preset No Wrap-Around Up
"DOWN"   sets Preset No Wrap-Around Down
"QSTN"   gets the Preset No

RDS Information Command "RDS"

Commands to set the RDS Information status

Parameter List (Characters/Means) :
"00"   sets RT Information Display
"01"   sets PTY Information Display
"02"   sets TP Information Display
"UP"   sets Display Information Wrap-Around Change

PTY Scan Command "PTS"

Commands to set the PTY scan status

Parameter List (Characters/Means) :
   "00"-"1E"   sets PTY No "0 - 30" (In hexadecimal representation)

TP Scan Command "TPS"

Commands to set the TP scan with the parameter In this message

Don't Have Parameter

Display Information Command "DIF"

Commands to set the display Information

Parameter List (Characters/Means) :
   "00"   sets Program Format Display
   "01"   sets Digital Input Position Display
   "02"   sets Digital Format Position Display
   "03"   sets Bass Level Display
   "04"   sets Treble Level Display

Dimmer Level Command "DIM"

Commands to set or get the dimmer level with the parameter In this message

Parameter List (Characters/Means) :
   "00"   sets Dimmer Level "Bright"
   "01"   sets Dimmer Level "Dim"
   "02"   sets Dimmer Level "Dark"
   "03"   sets Dimmer Level "Shut-Off"
   "DIM"   sets Dimmer Level Wrap-Around Up
   "QSTN"   gets the Dimmer Level

OSD Control Command "OSD"

Commands to operate the On Screen Display status

Parameter List (Characters/Means) :
"MENU"   Menu Key
"UP"   Up Key
"DOWN"   Down Key
"RIGHT"   Right Key
"LEFT"   Left Key
"ENTER"   Enter Key
"EXIT"   Exit Key

CD Control Command "CCD"

Commands to control ONKYO CD players via the ONKYO RI System.

Parameter List (Characters/Means) :
"PLAY"   PLAY
"STOP"   STOP
"PAUSE"   PAUSE
"OP/CL"   OPEN/CLOSE
"SKIP.F"   >>I
"SKIP.R"   I<<
"DISP"   DISPLAY
"REPEAT"   REPEAT
"RANDOM"   RANDOM
"MEMORY"   PROGRAM
"CLEAR"   CLEAR
"TRACK"   TRACK+
"1"   1
"2"   2
"3"   3
"4"   4
"5"   5
"6"   6
"7"   7
"8"   8
"9"   9
"0"   0
"+10"   +10
"D.SKIP"   DISC SKIP+

TAPE1(A) Control Command "CT1"

Commands to control ONKYO TAPE decks via the ONKYO RI System.

Parameter List (Characters/Means) :
"PLAY.F"   PLAY >

```
"PLAY.R"   PLAY <
"STOP"     STOP
"RC/PAU"   REC/PAUSE
"FF"       FF >>
"REW"      REW <<
```

TAPE2(B) Control Command "CT2"

Commands to control ONKYO TAPE decks via the ONKYO RI System.

Parameter List (Characters/Means) :
```
"PLAY.F"   PLAY >
"PLAY.R"   PLAY <
"STOP"     STOP
"RC/PAU"   REC/PAUSE
"FF"       FF >>
"REW"      REW <<
"OP/CL"    OPEN/CLOSE
"SKIP.F"   >>I
"SKIP.R"   I<<
```